

Waste Tank Summary Report for Month Ending October 31, 1996

Prepared for the U.S. Department of Energy
Office of Environmental Restoration and
Waste Management

Project Hanford Management Contractor for the
U.S. Department of Energy under Contract DE-AC06-96RL13200

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B. M. Hanlon
Lockheed Martin Hanford Corporation

Date Published
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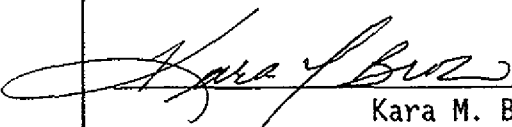
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Kara M. Broz

APPROVALS

Prepared by: Bm. Hanlon 2/4/97
B. M. Hanlon Date

Responsible
Manager: J. J. Badden 2/4/97 -
J. J. Badden, Manager Date -
West Tank Farms Engineering Support

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WASTE TANK SUMMARY REPORT

B. M. Hanlon

ABSTRACT

This report is the official inventory for radioactive waste stored in underground tanks in the 200 Areas at the Hanford Site. Data that depict the status of stored radioactive waste and tank vessel integrity are contained within the report. This report provides data on each of the existing 177 large underground waste storage tanks and 63 smaller miscellaneous underground storage tanks and special surveillance facilities, and supplemental information regarding tank surveillance anomalies and ongoing investigations. This report is intended to meet the requirement of U. S. Department of Energy-Richland Operations Office Order 5820.2A, Chapter I, Section 3.e. (3) (DOE-RL, 1990, Radioactive Waste Management, U. S. Department of Energy-Richland Operation Office, Richland, Washington) requiring the reporting of waste inventories and space utilization for Hanford Tank Farm Tanks.

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METRIC CONVERSION CHART		
1 inch	=	2.54 centimeters
1 foot	=	30.48 centimeters
1 gallon	=	3.80 liters
1 ton	=	0.90 metric tons
$^{\circ}\text{F} = \left(\frac{9}{5} ^{\circ}\text{C} \right) + 32$		
1 Btu/h = 2.930711 E-01 watts (International Table)		

WASTE TANK SUMMARY REPORT FOR MONTH ENDING OCTOBER 31, 1996

Note: Changes from the previous month are in bold print.

I. WASTE TANK STATUS

Category	Quantity	Date of Last Change
Double-Shell Tanks ^c	28 double-shell	10/86
Single-Shell Tanks ^a	149 single-shell	07/88
Assumed Leaker Tanks ^f	67 single-shell	7/93
Sound Tanks	28 double-shell 82 single-shell	1986 7/93
Interim Stabilized Tanks ^{b,d}	115 single-shell	05/96
Not Interim Stabilized ^f	34 single-shell	05/96
Intrusion Prevention Completed ^e	108 single-shell	09/96
Controlled, Clean, and Stable ⁱ	36 single-shell	09/96
Watch List Tanks ^g	32 single-shell 6 double-shell	9/96 ^h 6/93
Total	38 tanks	

^a All 149 single-shell tanks were removed from service (i.e., no longer authorized to receive waste) as of November 21, 1980.

^b Of the 115 tanks classified as Interim Stabilized, 62 are listed as Assumed Leakers. The total of 115 Interim Stabilized tanks includes one tank (B-202) that does not meet current established supernatant and interstitial liquid stabilization criteria. (See Table I-1 footnotes, item #2)

^c Six double-shell tanks are currently included on the Hydrogen Watch List and are thus prohibited from receiving waste in accordance with "Safety Measures for Waste Tanks at Hanford Nuclear Reservation," Section 3137 of the National Defense Authorization Act for Fiscal Year 1991, November 5, 1990, Public Law 101-510.

^d Of the 32 single-shell tanks on Watch Lists, 11 have been Interim Stabilized.

^e Of the 32 single-shell tanks on Watch Lists, 11 have completed Intrusion Prevention (this category replaced Interim Isolation). (See Appendix C for "Intrusion Prevention" definition).

^f Five of these tanks are Assumed Leakers. (See Table H-1) Tank SX-102 was declared an Assumed Leaker in May, and reclassified as Sound in July, 1993. See "Waste Tank Investigations" section of the July 1993 report for more details.

^g See Section A tables for more information on Watch List Tanks. Eight tanks (A-101, S-102, S-111, SX-103, SX-106, U-103, U-105, and U-107) are currently on more than one Watch List.

^h Dates for the Watch List tanks are "officially added to the Watch List" dates. (See Table A-1, Watch List Tanks, for further information.)

ⁱ The TY tank farm was officially declared Controlled, Clean, and Stable in March 1996. The TX tank farm and BX tank farms were declared CCS in September 1996. (BX-103 has been declared to have met current interim stabilization criteria, and is included in CCS - see also Appendix I).

II. WASTE TANK INVESTIGATIONS

This section includes all single-shell tanks or catch tanks which are showing surface level or interstitial liquid level (ILL) decreases, or drywell/lateral radiation level increases in excess of established criteria.

There are currently no tanks under investigation for ILL decreases or drywell/lateral radiation level increases which exceed the criteria.

A. Assumed Leakers or Assumed Re-leakers: (See Appendix C for definition of "Re-leaker")

This section includes all single- or double-shell tanks or catch tanks for which an off-normal or unusual occurrence report has been issued for assumed leaks or re-leaks. Tanks/catch tanks will remain on this list until either a) completion of Interim Stabilization, or b) the updated occurrence report indicates that the tank/catch tank is not an assumed leaker.

There are currently no tanks for which an off-normal or unusual occurrence report has been issued for assumed leaks or re-leaks.

B. Tanks with increases indicating possible intrusions:

This section includes all single-shell tanks and related receiver tanks for which the surveillance data show that the surface level or ILL has met or exceeded the increase criteria, or are still being investigated.

244-AR Tanks and Sumps: Currently, all ventilation systems at 244-AR are shut down. Based on the weight factor gauges for the sumps and tanks, Tank 001 contains 1800-2400 gallons, Tank 002 contains 22,000-24,000 gallons (some unknown amount of sludge), Tank 003 contains 1400-2100 gallons, and Tank 004 contains 280-450 gallons. Intrusion water in Sump 003 continues to increase whenever rainfall occurs; the sump currently contains approximately 2000-2400 gallons of water.

Tank 241-B-202. A steady increase in the surface level measurement has been observed since December 1984. The manual tape pencil plummet is contacting liquid. When the quarterly reading was obtained on October 6, 1992, the level was recorded as 144.75 inches, thus exceeding the 2.00-inch increase criteria from the established baseline of 142.50 inches. The surface level measurement was rechecked on October 9, 1992, at 145.50 inches, verifying the increase and that the criteria had been exceeded. Occurrence Report RL-WHC-TANKFARM-1993-0024 was issued February 13, 1993, as a result of the tank exceeding a 2.00-inch increase criteria from the established baseline of 142.50 inches. The increase criteria was changed from 2.00 inches to 3.00 inches in January 1996, per OSD-TI-151-00031. The surface level measurement was 146.25 inches on October 31, 1996. The monitoring frequency has been increased from quarterly to daily.

Resolution status: A new baseline was established at 145.50 inches as a temporary measure until the new photos could be taken. In-tank videos were taken on June 15, 1995. Comparison was made of the videos with the photos taken May 1985 and with a composite photo compiled from 1977 photos. In 1985, a thin layer of liquid had formed over the bright yellow-colored solids. In

the 1995 videos, the solids can barely be seen beneath the liquid surface and have lost their color. The liquid is also darker in the videos, to the point that it looks oily. It should be noted, however, that the color difference may be due to lighting and the difference in media.

By comparing the sidewall-liquid interface as seen in the videos with that seen in the photos, it has been visually estimated that the tank has experienced at least a 2.00-inch liquid level increase since 1985.

It had rained earlier in the day prior to the videos being taken. Moisture could be seen on the internal circumference of the concrete manhole across from the observation port in videos taken of the dome. An assessment of the tank indicates the tank is experiencing an ongoing intrusion as is evidenced by the increased liquid level and moisture in the manhole. No funds were allocated for performing intrusion investigations in FY 1997.

According to historical level data, the level in B-202 has increased by 3.75 inches since stabilization in 1985. This equates to about 799 gallons. The Stabilization Criteria for the 200-series tanks is 400 gallons. Tank B-202 no longer meets the criteria, as 800 gallons of liquid waste is now present in the tank.

Tank 241-BX-101. On September 2, 1993, the surface level increased from 10.00 to 12.00 inches, thus reaching the 1.00-inch increase criteria from the reference baseline of 11.00 inches. In-tank photographs show the manual tape donut plummet contacting liquid in a shallow pool. The tank was then rebaselined to 12.00 inches. The surface level measurement taken by the recently-installed ENRAF gauge differs by about a 12 inch-increase over the reading shown by the prior gauge. A new baseline of 23.75 inches has been established for the ENRAF gauge. Surface level measurement was 23.84 inches on October 31, 1996. This tank is classified as an Assumed Leaker, Interim Stabilized, and Intrusion Prevention completed.

Resolution Status: Comparison of November 1988 photos with November 1994 videos shows evidence of an ongoing intrusion. The source of the intrusion must be verified by visual inspection of pits. No funds were allocated for performing intrusion investigations in FY 1997.

Tank 241-BX-103. This tank has shown an erratic increase in surface level measurements since January 6, 1986. The FIC plummet is contacting liquid as indicated by in-tank photographs taken October 31, 1986. On January 18, 1993, the surface level measurement in this tank exceeded the 0.50-inch increase criteria from the reference baseline of 19.50 inches, and was verified on January 20, 1993. Discrepancy Report S&DA 93-522 was issued January 21, 1993. Occurrence Report RL-WHC-TANKFARM-1993-0036 was issued March 25, 1993. The baseline was adjusted to 20.50 inches with a 1.00-inch increase criteria on July 11, 1994, but the intrusion investigation is not yet complete. The surface level measurement taken by the recently-installed ENRAF gauge differs by about a 12 inch-increase over the reading shown by the prior gauge. A new baseline of 33.15 inches has been established for the ENRAF gauge. The surface level measurement was 33.24 inches on October 31, 1996. This tank is classified as Sound, Interim Stabilized, and Intrusion Prevention completed.

Resolution status: The current level is greater than that prior to stabilization in November 1983. The tank was previously determined to have experienced an intrusion from 1977 to March 1983 (prior to stabilization). Subsequent isolation was expected to halt the intrusion, however, the intrusion is apparently ongoing. A visual survey of the area was performed to determine possible paths for precipitation to enter the tank. The weather covering on the pits and risers was found in place and undamaged. The existing grade is level and revealed no obvious draining problems. Design/isolation drawing review revealed that nozzles, floor drains and some transfer lines entering the heel pit have been left open. An in-tank video was taken on October 27, 1994. The video, compared with the most recent photos, verified that an increase in liquid level occurred. The current supernate volume has been estimated to be approximately 6000 gallons, indicating that the tank no longer meets the criteria for interim stabilization (see last paragraph). The surface level has remained stable since January 1993, and within the limits of the new baseline.

A new in-tank video was taken February 20, 1996, and compared with the October 27, 1994, video. The new video shows a cloud of vapor rising briskly off the liquid surface. Whenever the camera was pointed upwards, water droplets appeared on the lens. Riser penetrations in the old video, that appeared to have accumulated exterior mineral deposits from water seepage, were now wet in the new video. The dome also looked damp. The strip of sludge/saltcake around the perimeter of the tank also appeared slightly narrower. Comparison of videos detected a change in the beachline. It is felt that the intrusion is not localized to one area, but probably a number of risers have poor seals between the metal surface and concrete dome.

A review of the historical surface level data reveals the increase has not leveled off. In fact, an increase of about 0.1 inch occurred during the beginning of February 1996, which was within the time frame of the recent snow storm melt.

To establish a more conclusive evaluation, digitization of both videos will be done in order to produce prints with which to perform side-by-side comparisons of beachlines, risers, etc. The existence of the intrusion has been confirmed and it has been recommended that intrusion prevention activities be initiated, however, no funds have been allocated for performing intrusion investigations in FY 1997.

Tank 241-BY-107. This tank is being removed from the report because it was rebaselined in January 1996 and subsequent manual tape quarterly surface level readings have been below the increase criteria. The LOW is the primary method of intrusion detection and has remained steady and within tolerance.

Tank 241-C-101: Manual tape surface level quarterly readings;

4th Qtr, 1996 - 24.50 inches taken on October 2
 3rd Qtr, 1996 - 24.25 inches taken on July 1.
 2nd Qtr, 1996 - 24.00 inches taken on April 1.
 1st Qtr, 1996 - 26.25 inches taken on January 1, was over the increase criteria of 3.00 inches above baseline of 23.00 inches.

This tank has consistently read between 25.00 inches and 26.50 inches since 1981 until October 1994, when it dropped to 23.00 inches and remained there

for the first three quarters of 1995. The tank was rebaselined to 23.00 inches during that time.

Resolution Status: The waste surface is dry. A previous investigation into surface level anomalies in this tank revealed that the manual tape device itself is inadequate for a number of reasons including: (1) a pencil plummet was installed rather than a donut; (2) the method of attaching the plummet was improper, which may have led to the plummet separating from the tape; and (3) the riser in which the MT is installed contains an obstruction, possibly a donut lodged in the PVC liner. It was recommended to move the device to a different riser and/or install an ENRAF, but it was decided to first obtain in-tank videos to inspect the plummet and waste condition. Resolution is awaiting the in-tank video.

III. SURVEILLANCE AND WASTE TANK STATUS HIGHLIGHTS

1. Flammable Gas Issue Results in Administrative Controls on 121 Underground Waste Storage Tanks

Administrative controls were placed on the 121 underground waste storage tanks not already covered by Watch List controls. Since saltwell pumping of flammable gas tanks is not within the current authorization basis, a safety analysis is required prior to pumping. Upon completion of the required safety analysis, DOE-RL will review the results and make a determination if pumping can commence. The additional flammable gas controls have imposed limitations on continuing work toward meeting several Tri-Party Agreement milestones.

Westinghouse Hanford Company (WHC) completed evaluation of 177 high level waste tanks to determine if they qualify to be considered for inclusion on the Flammable Gas Watch List. Based on the results of this review, a total of 31 additional tanks (including 25 previously recommended) are subject to OSD-T-151-00030, "Operating Specifications for Watch List Tanks," controls. The 25 tanks currently on the Watch List, plus 31 additional tanks which were recommended to be added, brings the total of tanks subject to controls to 56.

DOE-RL reviewed the evaluation and made a determination that the originally recommended 25 tanks will not be added to the Flammable Gas Watch List at this time. Further studies and evaluation will be done. There are currently 25 tanks on the Flammable Gas (Hydrogen) Watch List.

In October 1996, DOE-RL established that an Unreviewed Safety Question (USQ) existed concerning flammable gas, and also approved an interim basis for continued operations through specific controls spelled out in East and West Tank Farms (DOE-RL approved) standing orders. Work affected by this action will resume in a controlled manner when the controls are validated and training is complete.

2. Additional Management Controls Placed on Organic Watch List Tanks

The Department of Energy (DOE) and Westinghouse Hanford have placed additional management controls to enhance safety on Hanford's underground radioactive waste storage tanks following a DOE decision to declare an "Unreviewed Safety Question" (USQ) on some tanks containing dry organic nitrate chemicals.

The presence of these chemicals has been well known for some time, but analysis of accident scenarios that were once thought impossible are now considered possible under certain circumstances. These circumstances include a lightning strike, a ruptured vehicle gas tank causing fuel to reach the waste, and the chance of hot debris entering the tanks from welding or grinding activities.

3. Single-Shell Tanks Saltwell Jet Pumping (See Table E-6 footnotes for further information)

NOTE: Tank Waste Remediation System Plant Review Committee shut pumping down in BY-103, BY-106, and BY-109 on October 16, 1995, because of flammable gas issues. See Item #1 above. (Pumping was resumed in BY-109 in September 1996). Pumping was again shut down on October 18, 1996, because of flammable gas issues.

Tank 241-BY-109 - Pumping resumed on September 11, 1996. 3.5 Kgallons were pumped during October which is in excess of past pumpable liquid remaining estimates. Data generated by the current pumping campaign will be used to revise porosity, pumpable liquid remaining and waste volume estimates as appropriate. On October 16, the pump was shut down and left off in preparation for a transfer. A total of 154 Kgallons has been pumped from this tank.

Tank 241-S-108 - Pumping began on March 8, 1996. Pumping was completed on September 12 and the interim stabilization evaluation is in progress. A total of 199.8 Kgallons has been pumped from this tank. The saltwell level stabilized at 16.7 inches on September 27. Porosity is estimated at 16.9% and the amount of drainable liquid remaining is estimated at 2.18 Kgallons. An in-tank video is needed before this tank can be declared interim stabilized, but is being delayed until flammable gas issues can be resolved.

Tank 241-S-110 - Pumping resumed June 3, 1996, and was interrupted on July 16. There appears to be an impeller/shaft disconnect. Saltwell level has stabilized at 92 inches. Porosity is estimated at 10.5% and the amount of drainable fluids including the capillary is estimated at 26.6 Kgallons. An evaluation will be performed to declare the tank interim stabilized. The evaluation is being delayed due to flammable gas issues which must be resolved before an in-tank video can be taken.

Tank 241-T-104 - Pumping started March 24, 1996. The pump failed August 26, and was replaced; pumping resumed September 9, and 5.2 Kgallons were pumped in October. A total of 89 Kgallons has been pumped. Pumping is now on hold pending detailed review of flammable gas issues.

4. Single-Shell Tank TPA Interim Stabilization Milestones

All M-41-xx Milestones are being renegotiated.

5. Tank Waste Remediation System Safety Initiatives

The U. S. Secretary of Energy has directed that six safety initiatives be implemented in the Tank Waste Remediation System Program to accelerate the mitigation/resolution of the high priority waste tank safety issues at the

Hanford Site. Forty-two milestones were established for accomplishing the initiatives.

No Safety Initiatives were scheduled to be completed this month.

6. Characterization Progress Status (See Appendix J)

Characterization is understanding the Hanford tank waste chemical, physical, and radiological properties to the extent necessary to ensure safe storage and interim operation, and ultimate disposition of the waste.

Characterization Progress for October:

Two tanks previously identified as needing more sampling are now in the process of resampling: BY-112 and U-103. Tank Characterization Reports written on several tanks have changed their status to "Report Under Review:" BX-105, BX-107, and T-104. The need for more material has been identified for tanks AW-103, B-108, and C-106 (although a significant sampling effort has been completed for this latter tank, Safety Screening DQO criteria have not been met).

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APPENDIX A

WASTE TANK SURVEILLANCE MONITORING TABLES

TABLE A-1. WATCH LIST TANKS
October 31, 1996

These tanks have been identified as Watch List Tanks in accordance with Public Law 101-510, Section 3137, "Safety Measures for Waste Tanks at Hanford Nuclear Reservation," (1990). These tanks have been identified as the Priority 1 Hanford Site Tank Farm Safety Issues: "Issues/situations that contain most necessary conditions that could lead to worker (onsite) or offsite radiation exposure through an uncontrolled release of fission products, e.g., Tank SY-101."

Single-Shell Tanks			Double-Shell Tanks		
Tank No.	Category	Officially Added to Watch List	Tank No.	Category	Officially Added to Watch List
A-101 (*)	Hydrogen	1/91	AN-103	Hydrogen	1/91
	Organics	5/94	AN-104	Hydrogen	1/91
AX-101	Hydrogen	1/91	AN-105	Hydrogen	1/91
AX-102	Organics	5/94	AW-101	Hydrogen	6/93
AX-103	Hydrogen	1/91	SY-101	Hydrogen	1/91
B-103	Organics	1/91	SY-103	Hydrogen	1/91
C-102	Organics	5/94			
C-103	Organics	1/91			
C-106	High Heat Load	1/91			
S-102 (*)	Hydrogen,	1/91			
	Organics	1/91			
S-111 (*)	Hydrogen	1/91			
	Organics	5/94			
S-112	Hydrogen	1/91			
SX-101	Hydrogen	1/91			
SX-102	Hydrogen	1/91			
SX-103 (*)	Hydrogen	1/91			
	Organics	5/94			
SX-104	Hydrogen	1/91			
SX-105	Hydrogen	1/91			
SX-106 (*)	Hydrogen,	1/91			
	Organics	1/91			
SX-109	Hydrogen because other tanks vent thru it	1/91			
T-110	Hydrogen	1/91			
T-111	Organics	2/94			
TX-105	Organics	1/91			
TX-118	Organics	1/91			
TY-104	Organics	5/94			
U-103 (*)	Hydrogen	1/91			
	Organics	5/94			
U-105 (*)	Hydrogen	1/91			
	Organics	5/94			
U-106	Organics	1/91			
U-107 (*)	Organics	1/91			
	Hydrogen	12/93			
U-108	Hydrogen	1/91			
U-109	Hydrogen	1/91			
U-111	Organics	8/93			
U-203	Organics	5/94			
U-204	Organics	5/94			
32 Tanks (*)					

32 Single-Shell tanks
6 Double-Shell tanks
38 Tanks on Watch Lists

(*) Eight tanks are on more than one Watch List

All tanks were removed from the Ferrocyanide Watch List; see Table A-2, and A-3 (footnote #5)

TABLE A-2. ADDITIONS/DELETIONS TO WATCH LISTS BY YEAR
October 31, 1996

Added/Deleted dates may differ from dates that tanks were officially added to the Watch Lists. (See Table A-1).

	Ferrocyanide	Hydrogen	Organics	High Heat	Total Tanks (1)		
					SST	DST	Total
1/91 Original List - Response to Public Law 101-510	23	23	8	1	47	5	52
Added 2/91 (revision to Original List)	1 T-107				1		1
Total - December 31, 1991	24	23	8	1	48	5	53
Added 8/92		1 AW-101				1	1
Total - December 31, 1992	24	24	8	1	48	6	54
Added 3/93 Deleted 7/93	-4 (BX-110) (BX-111) (BY-101) (T-101)		1 U-111		1 -4		
Added 12/93		1 (U-107)			0		
Total - December 31, 1993	20	25	9	1	45	6	51
Added 2/94 Added 5/94			1 T-111 10 A-101 AX-102 C-102 S-111 SX-103 TY-104 U-103 U-105 U-203 U-204		1 4		
Deleted 11/94	-2 (BX-102) (BX-106)				-2		
Total - December 31, 1994, & December 31, 1995	18	25	20	1	48	6	54
Deleted 6/96	-4 (C-108) (C-109) (C-111) (C-112)				-4		
Deleted 9/96	-14 (BY-103) (BY-104) (BY-105) (BY-106) (BY-107) (BY-108) (BY-110) (BY-111) (BY-112) (T-107) (TX-118) (TY-101) (TY-103) (TY-104)				-12		
Total - October 31, 1996	0	25	20	1	32	6	38

(1) Eight tanks are on more than one list: A-101, S-102, S-111, SX-103, SX-106, U-103, U-105, and U-107; therefore the total of tanks added or deleted will depend upon whether a tank is also on another list.

TABLE A-3. TEMPERATURE MONITORING IN WATCH LIST TANKS (Sheet 1 of 2)

October 31, 1996

All Watch List tanks are reviewed for increasing temperature trends. Temperatures in these tanks are monitored continuously by the Tank Monitor And Control System (TMACS), unless indicated otherwise.

Temperatures are taken in the waste unless in-waste thermocouples are out of service. See footnote (4) Temperatures below are the highest temperatures recorded in these tanks during this month, and do not exceed the maximum criteria limit for this month.

Temperatures in Degrees F.**Total Waste in Inches**

Hydro/Flammable Gas(4)			Organic Salts			High Heat (5)(6)		
Tank No.	Temp.	Total Waste	Tank No.	Temp.	Total Waste	Tank No.	Temp.	Total Waste
A-101 (*)	152	347	A-101 (*)	152	347	C-106	153	72
AX-101 (*) (7)	132	272	AX-102 (*)	79	14	1 Tank		
AX-103 (*)	111	40	B-103 (*) (7)	67	17			
S-102	107	207	C-102	83	149			
S-111	91	224	C-103	118	66			
S-112	84	239	S-102	107	207			
SX-101	136	171	S-111	91	224			
SX-102	145	203	SX-103	169	242			
SX-103	169	243	SX-106	110	201			
SX-104	164	229	T-111	66	158			
SX-105	174	254	TX-105 (*)	97	228			
SX-106	110	201	TX-118	74	134			
SX-109	149	96	TY-104	67	24			
T-110	66	133	U-103	86	166			
U-103	86	166	U-105	90	147			
U-105	90	147	U-106	81	78			
U-107	80	143	U-107	80	166			
U-108	88	166	U-111	81	115			
U-109	83	164	U-203	65	6			
AN-103	113		U-204	64	9			
AN-104	116		23 Tanks					
AN-105	108							
AW-101 (*)	105							
SY-101	121							
SY-103	99							
25 Tanks								

(*) Temperatures in these eight tanks are taken manually on a weekly basis.

38 Tanks are on the Watch List (8 tanks are on more than one list: A-101, S-102, S-111, SX-103, SX-106, U-103, U-105, U-107)

All tanks have been removed from the Ferrocyanide Watch List. See footnote (5), and Table A-2.

See next page for footnotes

TABLE A-3. TEMPERATURE MONITORING IN WATCH LIST TANKS (sheet 2 of 2)

Footnotes:Hydrogen/Flammable Gas:

Tanks which are suspected to have a significant potential for hydrogen/flammable gas generation, entrapment, and episodic release. There is a USQ associated with these tanks because of the potential consequences of a radiological release resulting from a flammable gas burn, an event not analyzed in the SST Safety Analysis Report (SAR).

Organic Salts:

Single-shell tanks containing concentrations of organic salts ≥ 3 weight% of total organic carbon (TOC)(equivalent to 10 wt% sodium acetate). High concentrations of organic compounds/chemicals could support an exothermic reaction at temperatures above 171°C. These tanks (with the exception of C-103), do not have an associated USQ because the presence of organic material was reviewed in the SAR. Double-shell tanks have >3 weight% TOC but are not on the Watch List because they contain mostly liquid, and there is no credible organic safety concern for tanks which contain mostly liquid.

High Heat:

Tanks which contain heat generating strontium-rich sludge and require drainable liquid to be maintained in the tank to promote cooling. Only tank C-106 is on the High Heat Watch List because in the event of a leak, without water additions the tank could exceed temperature limits resulting in unacceptable structural damage. The tank is cooled through evaporation in conjunction with active ventilation. Water is periodically added as evaporation takes place.

-
- (1) Tank SX-109 has the potential for flammable gas accumulation only because other SX tanks vent through it.
- (2) Tank C-106 is on the Watch List because in the event of a leak without water additions the tank could exceed temperature limits resulting in unacceptable structural damage.
- (3) There are 19 single-shell tanks on active ventilation (eight are on the Watch List as indicated by an asterisk):
- | | | |
|------------------|----------|----------|
| A-104)exhauster | SX-101 * | SX-107 |
| A-105)out of | SX-102 * | SX-108 |
| A-106)service | SX-103 * | SX-109 * |
| C-104 | SX-104 * | SX-110 |
| C-105 | SX-105 * | SX-111 |
| C-106 * | SX-106 * | SX-112 |
| | | SX-114 |
- (4) There are no in-waste temperatures for tanks AX-102 and B-103. The waste level in these tanks is lower than the lowest thermocouple in these tanks.
- (5) Four tanks, C-108, C-109, C-111, and C-112, are classified SAFE, and were removed from the FeCN Watch List per DOE-RL letter 96-WSD-116, dated June 25, 1996. The remaining 14 tanks were removed from the FeCN Watch List per DOE-RL letter 96-WSD-195, dated September 4, 1996.

TABLE A-4. TEMPERATURE MONITORING IN NON-WATCH LIST TANKS

October 31, 1996

SINGLE-SHELL TANKS WITH HIGH HEAT LOADS (>40,000 Btu/hr)

Ten tanks have high heat loads for which temperature surveillance requirements are established by Safety Analysis Report SD-WM-SAR-006 REV 2, dated September 1990, and OSD-T-151-00013 D-9, dated November 1995. Only one of these tanks (241-C-106) is on the High Heat Watch List.

Temperatures in these tanks did not exceed SAR or OSD requirements for this month. All high heat load tanks with the exception of 241-A-104 and 241-A-105 are on active ventilation. All high heat load tanks are continuously monitored by the Tank Monitor and Control System (TMACS), with the exception of A-104 and A-105 which are taken manually, on a weekly basis.

<u>Tank No.</u>	<u>Temperature (F.)</u>	<u>Total Waste In Inches</u>
A-104	187	10
A-105	145	07
C-106 (*)	153	72
SX-107	171	43
SX-108	194	37
SX-109	149	86
SX-110	168	28
SX-111	194	51
SX-112	153	39
SX-114	185	71
10 Tanks		

(*) C-106 on High Heat Load Watch List

Highest temperature in 34 lateral thermocouples beneath A-105: 245

SINGLE SHELL TANKS WITH LOW HEAT LOADS (<40,000 Btu/hr)

There are 108 low heat load tanks; temperatures in tanks connected to TMACS are taken continuously. Temperatures are manually taken semiannually in January and July in those tanks not yet connected to TMACS. All temperatures obtained were within historical ranges for the applicable tank. No temperatures have been obtained for several years in the tanks listed below. Most of these tanks have no thermocouple tree.

<u>Tank No.</u>	<u>Tank No.</u>
BX-104	TX-101
BY-102	TX-110
BY-109	TX-114
C-204	TX-116
SX-115	TX-117
T-102	U-104
T-105	

TABLE A-5. SINGLE-SHELL TANKS MONITORING COMPLIANCE STATUS

149 TANKS (Sheet 1 of 6)

October 31, 1996

The following table indicates whether Single-Shell tank monitoring was in compliance with the requirements as specified in the applicable documents as of the last day of the applicable month:

NOTE:

All Watch List and High Heat tank temperature monitoring is in compliance. (5)

All Dome Elevation Survey monitoring is in compliance.

Lateral/Drywell monitoring (13)

Psychrometrics (2)

In-tank Photographs (3)

Pressure Monitoring (6)

CAM/RAMP Monitoring (7)

Vapor Monitoring (8)

LEGEND:

(Shaded)	= in compliance with all applicable documentation
N/C	= noncompliance with applicable documentation
-357	= WHC-SD-WM-TI-357, "Waste Storage Tank Status and Leak Detection Criteria"
POP	= Plant Operation Procedure TO-040-650, "Obtain/Record SST Temperatures"
MT/FIC/ENRAF	= Surface level measurement devices
OSR/SAR	= Operational Safety Requirements/Safety Analysis Report, SD-WM-SAR-006, and -SAR-034, latest revisions
OSD	= Operating Specifications Doc., OSD-T-151-00013, -00031
N/A	= Not applicable (not monitored, or no monitoring schedule)
None	= Applicable equipment not installed
O/S	= Out of Service
Neutron	= LOW readings taken by Neutron probe

Tank Number	Tank Category		Temperature Readings (5)	Primary Leak Detection Source (9)	Surface Level Readings (1) (-357, OSR/SAR, OSD)			LOW Readings (OSD)(9,11)
	Watch List	High Heat			MT	FIC	ENRAF	
A-101	X			LOW	None	None		
A-102				None	None		None	None
A-103				LOW	None	None		
A-104		X		None	None	None		None
A-105		X		None	None	None	None	None
A-106				None	None	None		None
AX-101	X			LOW	None	None		(14)
AX-102	X			None	None	None	None	None
AX-103	X			None	None	None		None
AX-104				None	None	None		None
B-101				None	None		None	None
B-102				ENRAF	None	None		None
B-103	X			None	None		None	O/S
B-104				LOW		None	None	
B-105				LOW		None	None	
B-106				FIC	None		None	None
B-107				None		None	None	None
B-108				None	None		None	None
B-109				None		None	None	None
B-110				LOW		None	None	
B-111				LOW	None		None	
B-112				ENRAF	None	None		None
B-201				MT		None	None	None
B-202				MT		None	None	None
B-203				MT		None	None	None
B-204				MT		None	None	None
BX-101				ENRAF	None	None		None
BX-102				None	O/S	None		None
BX-103				ENRAF	None	None		None
BX-104			O/S-N/C	ENRAF	None	None		None
BX-105				None	None	None		None
BX-106				ENRAF	None	None		None
BX-107				ENRAF	None	None		None

TABLE A-5. SINGLE-SHELL TANKS MONITORING COMPLIANCE STATUS

149 TANKS (Sheet 2 of 6)

Tank Number	Tank Category		Temperature Readings (5)	Primary Leak Detection Source (9)	Surface Level Readings (1) (-357, OSR/SAR, OSD)			LOW Readings (OSD)(9,11)
	Watch List	High Heat			MT	FIC	ENRAF	
BX-108				None	O/S	None		None
BX-109				None	None	None		None
BX-110 (4)				None	O/S	None		None
BX-111 (4)				LOW	O/S	None		
BX-112				ENRAF	None	None		None
BY-101 (4)				LOW		None	None	
BY-102			O/S - N/C	LOW		None	None	
BY-103				LOW		None	None	
BY-104				LOW		None	None	
BY-105				LOW		None	None	
BY-106				LOW		None	None	
BY-107				LOW		None	None	
BY-108				None		None	None	None
BY-109			O/S - N/C	LOW	None		None	
BY-110				LOW		None	None	
BY-111				LOW		None	None	
BY-112				LOW		None	None	
C-101				None		None	None	None
C-102	X			None	None		None	None
C-103	X			ENRAF	None	None		None
C-104				None	None		None	None
C-105				None	None	None		None
C-106 (4)	X	X		ENRAF	None	O/S		None
C-107				ENRAF	None	None		None
C-108				None		None	None	None
C-109				None		None	None	None
C-110				MT		None	None	None
C-111				None		None	None	None
C-112				None	None	None		None
C-201				None		None	None	None
C-202				None		None	None	None
C-203				None		None	None	None
C-204			O/S - N/C	None		None	None	None
S-101				ENRAF	None	None		
S-102	X			ENRAF	None	None		
S-103				ENRAF	None	None		
S-104				LOW		None	None	
S-105				LOW	None	None		
S-106				ENRAF	None	None		
S-107				ENRAF	None	None		None
S-108				LOW	O/S	None		
S-109				LOW	None	None		
S-110				LOW	None	None		
S-111	X			ENRAF	None	None		
S-112	X			LOW	None	None		
SX-101	X			LOW	None	None		
SX-102	X			LOW	None	None		
SX-103	X			LOW	None	None		
SX-104	X			LOW	None	None		
SX-105	X			LOW	None	None		
SX-106	X			ENRAF	O/S	None		
SX-107		X		None		None	None	None
SX-108		X		None		None	None	None

TABLE A-5. SINGLE-SHELL TANKS MONITORING COMPLIANCE STATUS
149 TANKS (Sheet 3 of 6)

Tank Number	Tank Category		Temperature Readings (5)	Primary Leak Detection Source (9)	Surface Level Readings (1) (-357, OSR/SAR, OSD)			LOW Readings (OSD)(9,11)
	Watch List	High Heat			MT	FIC	ENRAF	
SX-109 (4)	X	X		None		None	None	None
SX-110		X		None		None	None	None
SX-111		X		None		None	None	None
SX-112		X		None		None	None	None
SX-113				None		None	None	None
SX-114		X		None		None	None	None
SX-115			O/S - N/C	None		None	None	None
T-101 (4)				None	None	None		None
T-102			O/S - N/C	ENRAF	None	None		None
T-103				None	None	None		None
T-104				LOW		None		
T-105			O/S - N/C	None	None	None		None
T-106				None	None	None		None
T-107				ENRAF	None	None		None
T-108				ENRAF	None	None		None
T-109				None	None	None		None
T-110	X			LOW	None	None		
T-111	X			LOW	None	None		
T-112				ENRAF	None	None		None
T-201				MT		None	None	None
T-202				MT		None	None	None
T-203				None		None	None	None
T-204				MT		None	None	None
TX-101			O/S - N/C	ENRAF	None	None		None
TX-102				LOW	O/S	None		
TX-103				None	None	O/S		None
TX-104				None	None	None		None
TX-105	X			None		None		O/S-N/C (12)
TX-106				LOW		None		
TX-107				None	None	O/S		None
TX-108				None	None	O/S		
TX-109				LOW	None	None		
TX-110			O/S - N/C	LOW		None		
TX-111				LOW		None		
TX-112				LOW		None		
TX-113				LOW		None		
TX-114			O/S - N/C	LOW		None		
TX-115				LOW		None		
TX-116			O/S - N/C	None		None		None
TX-117			O/S - N/C	LOW		None		
TX-118				LOW	None	None		
TY-101				None	None	None		None
TY-102				ENRAF	None	None		None
TY-103				LOW	None	None		
TY-104				ENRAF	None	None		None
TY-105				None	O/S	None		None
TY-106				None	O/S	None		None
U-101				MT		None	None	None
U-102				LOW	None	None		
U-103	X			ENRAF	None	None		
U-104			O/S - N/C	None		None	None	None
U-105	X			ENRAF	None	None		
U-106	X			ENRAF	None	None		

TABLE A-5. SINGLE-SHELL TANKS MONITORING COMPLIANCE STATUS
149 TANKS (Sheet 4 of 6)

Tank Number	Tank Category		Temperature Readings (5)	Primary Leak Detection Source (9)	Surface Level Readings (1) (-357, OSR/SAR, OSD)			LOW Readings (OSD)(9,11) Neutron
	Watch List	High Heat			MT	FIC	ENRAF	
U-107	X			ENRAF	None	None		
U-108	X			LOW	None	None		
U-109	X			ENRAF	None	None		
U-110				None	None	None		None
U-111	X			LOW	None	None		
U-112				None		None	None	None
U-201				MT		None	None	None
U-202				MT		None	None	None
U-203	X			None		None	None	None
U-204	X			MT		None	None	None
Catch Tanks and Special Surveillance Facilities								
A-302-A	N/A	N/A	N/A	(10)	None	None	None	None
A-302-B	N/A	N/A	N/A	(10)		None	None	None
ER-311	N/A	N/A	N/A	(10)	None		None	None
AX-152	N/A	N/A	N/A	(10)		None	None	None
AZ-151	N/A	N/A	N/A	(10)	None		None	None
AZ-154	N/A	N/A	N/A	(10)		None	None	None
BX-TK/SMP	N/A	N/A	N/A	(10)		None	None	None
A-244 TK/SMP	N/A	N/A	N/A	(10)	None	None	None	None
AR-204	N/A	N/A	N/A	(10)			None	None
A-417	N/A	N/A	N/A	(10)	None	None	None	None
A-350	N/A	N/A	N/A	(10)	None	None	None	None
CR-003	N/A	N/A	N/A	(10)	None	None	None	None
Vent Sta.	N/A	N/A	N/A	(10)		None	None	None
S-302	N/A	N/A	N/A	(10)	None	None		None
S-302-A	N/A	N/A	N/A	(10)	None		None	None
S-304	N/A	N/A	N/A	(10)	None		None	None
TX-302-B	N/A	N/A	N/A	(10)		None	None	None
TX-302-C	N/A	N/A	N/A	(10)	None	None		O/S
U-301-B	N/A	N/A	N/A	(10)	None	None		O/S
UX-302-A	N/A	N/A	N/A	(10)	None	None		O/S
S-141	N/A	N/A	N/A	(10)		None	None	None
S-142	N/A	N/A	N/A	(10)		None	None	None
Totals:	32	10	N/C:		N/C:	N/C:	N/C:	N/C:
149 tanks	Watch List Tanks (4)	High Heat Tanks (4)	13 tanks - (semiannual monitoring frequency) (5)		0 tanks 0 catch tanks	0 tanks 0 catch tanks	0 tanks	1 tank 65 tanks have LOWs

See Footnotes on next page

TABLE A-5. SINGLE-SHELL TANKS MONITORING COMPLIANCE STATUS
149 TANKS (Sheet 5 of 6)

Footnotes:

1. All SSTs have either manual tape, or FIC, (or ENRAF), or zip cord, or a combination of these surface level measuring devices.

ENRAF gauges are being installed to replace FICs, with the exception of C-106, which has both an ENRAF and an FIC. The ENRAF gauges are connected to TMACS, but many are currently being read manually from the field. See Table A-7 for list of ENRAF installations.

2. High heat tanks have active exhausters; psychrometrics can be taken in the high heat tanks, with the exception of A-104/105 because the exhausters have been down in these tanks since October 1991. Psychrometric readings are on an "as needed" basis with the exception of tanks C-105/106. Hanford Federal Facility Agreement and Consent Order, "Washington State Department of Ecology, U. S. Environmental Protection Agency, and U. S. Department of Energy," Fourth Amendment 1994 (Tri-Party Agreement) requires psychrometric readings to be taken in C-105/106 on a monthly frequency.
3. In-tank photographs are requested on an "as needed" basis. No in-tank photographs were taken between September 1990 and March 1993. In addition, in-tank videos are taken on an "as needed" basis.
4. Two tanks are on both category lists (C-106 and SX-109). In July 1993, C-105 was removed from the High Heat Load list and BX-110, BX-111, BY-101 and T-101 were removed from the Ferrocyanide Watch List. Four tanks, C-108, C-109, C-111, and C-112, are classified SAFE, and were removed from the FeCN Watch List per DOE-RL letter 96-WSD-116, dated June 25, 1996. The remaining 14 tanks on the Ferrocyanide Watch List, BY-106, BY-107, BY-108, BY-110, BY-111, BY-112, T-107, T-118, TY-101, TY-103, and TY-104, were removed from the Watch List per DOE-RL letter 96-WSD-195, dated September 4, 1996.
5. Temperature readings may be regulated by OSD, -357, or POP. Additionally, high heat load tanks are regulated by OSR/SAR. Temperatures cannot be obtained in 13 low heat load tanks (see Table A-4). The OSD does not require readings or repair of out-of service thermocouples for the 101 low heat load (<40,000 Btu/h) tanks. However, the POP requires that attempts are to be made semiannually in January and July to obtain readings for these tanks.

Temperatures for many tanks are monitored continuously by TMACS; see Table A-8, TMACS Monitoring Status.

6. Pressure Monitoring is not addressed in this table.
7. Continuous Air Monitoring (CAM) compliance and Radiation Area Monitoring Panel (RAMP) compliance are not addressed in this table.
8. Continuous vapor/flammable gas monitoring is not addressed in this table.
9. Document WHC-OSD-T-151-00031, "Operating Specifications for Tank Farm Leak Detection," requires that single-shell tanks with the surface level measurement device contacting liquid, partial liquid, or floating crust surface, will be monitored for leak detection on a daily basis. Tanks with a solid surface will be monitored for leak detection on a weekly basis by taking neutron scan data from a Liquid Observation Well (LOW), if an LOW is present. Tanks with a solid surface but without LOWs will not be monitored for leak detection if the tank has been interim stabilized, until an LOW is installed. Non-interim-stabilized tanks will have drywell surveys taken as a backup on a monthly basis if surface or interstitial level measurement equipment is unavailable. The OSD specifies what leak detection methods are to be used for each tank, and the requirements if the readings are not taken on the required frequency or if equipment is out of service.
10. Leak detection for the catch tanks is performed by monitoring for the buildup of liquid in the secondary containment (for most tanks with secondary containment) or for decrease in the liquid level for those tanks without secondary containment or secondary containment monitoring.

Tanks 240-S-302 and 241-S-302-A are monitored for intrusions only, and are not subject to leak detection monitoring requirements until liquid is present above the intrusion level.

Weight Time Factor is the surface level measuring device currently used in A-417, A-302-A, A-350 and 244-A-Tank/Sump. DCRT CR-003 is inactive and measured in gallons.

11. Document WHC-SD-WM-TI-605, REV. 0, dated January 1994, describes the rationale for Liquid Observation Well (LOW) installation priority. This priority is based on tank leak status, tank surface condition, and tank stabilization status. Also included is a listing of tanks with the waste level being below two feet which have no priority assigned because no effort will be made to install LOWs in the near future. LOW probes are unable to accurately monitor interstitial liquid levels less than two feet high.

TABLE A-5. SINGLE-SHELL TANKS MONITORING COMPLIANCE STATUS

149 TANKS (Sheet 6 of 6)

Tanks which will not receive LOWs:

A-102	BX-101	C-201	T-106
A-104	BX-103	C-202	T-108
A-105	BX-105	C-204	T-109
AX-102	BX-106	SX-110	TX-107
AX-104	BX-108	SX-113	TY-102
B-102	C-108	SX-115	TY-104
B-103	C-109	T-102	TY-106
B-112	C-111	T-103	U-101
			U-112

Total - 33 Tanks

12. TX-105 - the riser has been removed; it has not been monitored since January 1987. Liquid levels are being taken.
13. All drywells and lateral scans are done by request only, when required in addition to, or as a BACKUP for, a PRIMARY leak detection method, per OSD-T-151-00031. Currently, there are only two tanks which require drywell scans (C-105 and C-106); these are taken monthly.

Only two tank farms, A and SX, have laterals. There are currently no functioning laterals and no plans to prepare these for use.

14. AX-101 - LOW reading taken by gamma rather than neutron sensor.

TABLE A-6. DOUBLE-SHELL TANKS MONITORING COMPLIANCE STATUS

28 TANKS (Sheet 1 of 2)

October 31, 1996

The following table indicates whether Double-Shell tank monitoring was in compliance with the requirements as specified in the applicable documents as of the last day of the month indicated:

NOTE:

Dome Elevation Surveys are not required for DSTs.
 Psychrometrics (2)
 In-tank Photographs (3)
 Pressure Monitoring (6)
 CAM/RAMP Monitoring (7)
 Vapor Monitoring (8)

LEGEND:

Shaded = In compliance with all applicable documentation
 N/C = Noncompliance with applicable documentation
 -357 = WHC-SD-WM-TI-357, "Waste Storage Tank Status and Leak Detection Criteria"
 M.T. = Manual Tape
 FIC/ENRAF = Surface level measurement devices
 OSR/SAR = Operational Safety Requirements/Safety Analysis Report WHC-SD-WM-SAR-016 and WHC-SD-HS-SAR-010
 OSD = Operating Specifications Doc., OSD-T-151-0007
 None = no M.T., FIC or ENRAF installed
 O/S = Out of Service
 W.F. = Weight Factor
 Rad. = Radiation

Tank Number	Watch List	Temperature Readings (4) (OSD)	Surface Level Readings (1) (-357, OSR/SAR, OSD)			Radiation Readings		
						Leak Detection Pits (5) (-357, OSR/SAR, OSD)		Annulus (-357)
			M.T.	FIC	ENRAF	W.F.	Rad.	
AN-101				None				
AN-102					None			
AN-103	X			None				
AN-104	X		O/S	None				
AN-105	X		O/S	None				
AN-106					None			
AN-107					None			
AP-101					None		O/S	
AP-102					None		O/S	
AP-103					None		O/S	
AP-104			O/S		None		O/S	
AP-105					None		O/S	
AP-106					None		O/S	
AP-107					None		O/S	
AP-108					None		O/S	
AW-101	X			None			O/S	
AW-102					(10)		O/S	
AW-103				None			O/S	
AW-104				None			O/S	
AW-105				None			O/S	
AW-106				None			O/S	
AY-101				None				(9)
AY-102					None			(9)
AZ-101			O/S	None				(9)
AZ-102					None			(9)
SY-101	X		O/S				(11)	
SY-102				None				
SY-103	X		O/S	None			(11)	
Totals: 28 tanks	6 Watch List Tanks	N/C: 0	N/C: 0	N/C: 0	N/C: 0	N/C: 0	N/C: 0	N/C: 0

See footnotes next page.

TABLE A-6. DOUBLE-SHELL TANKS MONITORING COMPLIANCE STATUS
28 TANKS (Sheet 2 of 2)

Footnotes:

1. All DSTs have both FIC and manual tape which is used when the FIC is out of service. N/C will be shown when no readings are obtained. ENRAF gauges are being installed to replace FICs, with the exception of SY-101, which has both. The ENRAF gauges are connected to TMACS, but some are currently being read manually.
2. Psychrometric readings are taken on an "as needed" basis. Currently, monthly readings are being taken on the SY-101, SY-102, and SY-103 tank exhaust. No other psychrometric readings are currently being taken.
3. In-tank photographs are requested on an "as needed" basis.
4. OSD specifies DST temperature limits, gradients, etc.
5. Failure of both leak detection systems requires repair of at least one system within 5 working days. Failure of one system only, repair must be within 10 workdays per -357 document. If the repair of out-of-service system exceeds these timeframes, all systems are N/C. Out-of-service systems which have not exceeded these timeframes will be shown as O/S.
6. Pressure Monitoring is not addressed in this table.
7. Continuous Air Monitoring (CAM) compliance and Radiation Area Monitoring Panel (RAMP) compliance are not addressed in this table.
8. Continuous vapor/flammable gas monitoring is not addressed in this table.
9. AY-101/102 and AZ-101/102 annulus are now monitored by an Annulus Leak Detection Probe Measurement rather than the annulus CAM.
10. AW-102 has ENRAF, FIC and M.T. At some point the FIC will be removed.
11. SY-101 and SY-103 had intermittent RAD readings due to power problems.

**TABLE A-7. ENRAF SURFACE LEVEL GAUGE INSTALLATION AND
DATA INPUT METHODS**

October 31, 1996

LEGEND CASS = Computer Automated Surveillance System											
SACS = Surveillance Analysis Computer System											
TMACS = Tank Monitor and Control System											
Auto = Automatically entered into TMACS and electronically transmitted to SACS											
Manual = EITHER manually entered into CASS by field operators and electronically transmitted to SACS OR manually entered directly into SACS by surveillance personnel, from Field Data sheets											
EAST AREA						WEST AREA					
Tank No.	Installed Date	Input Method	Tank No.	Installed Date	Input Method	Tank No.	Installed Date	Input Method	Tank No.	Installed Date	Input Method
A-101	09/95	Manual	B-201			S-101	02/95	Manual	TX-101	11/95	Auto
A-102			B-202			S-102	05/95	Manual	TX-102	05/96	Auto
A-103	07/96	Manual	B-203			S-103	05/94	Auto	TX-103	12/95	Auto
A-104	05/96	Manual	B-204			S-104			TX-104	03/96	Auto
A-105			BX-101	04/96	Auto	S-105	07/95	Manual	TX-105	04/96	Auto
A-106	01/96	Manual	BX-102	06/96	Auto	S-106	06/94	Auto	TX-106	04/96	Auto *
AN-101	08/96	Manual	BX-103	04/96	Auto	S-107	06/94	Auto	TX-107	04/96	Auto
AN-102			BX-104	05/96	Auto	S-108	07/95	Manual	TX-108	04/96	Auto
AN-103	08/95	Manual	BX-105	03/96	Auto	S-109	08/95	Manual	TX-109	11/95	Auto
AN-104	08/95	Manual	BX-106	07/94	Auto	S-110	08/95	Manual	TX-110	05/96	Auto
AN-105	08/95	Manual	BX-107	06/96	Auto	S-111	08/94	Auto	TX-111	05/96	Auto
AN-106			BX-108	05/96	Auto	S-112	05/95	Manual	TX-112	05/96	Auto
AN-107			BX-109	08/95	Auto	SX-101	04/95	Manual	TX-113	05/96	Auto
AP-101			BX-110	06/96	Auto	SX-102	04/95	Manual	TX-114	05/96	Auto
AP-102			BX-111	05/96	Auto	SX-103	04/95	Manual	TX-115	05/96	Auto
AP-103			BX-112	03/96	Auto	SX-104	05/95	Manual	TX-116	05/96	Auto
AP-104			BY-101			SX-105	05/95	Manual	TX-117	06/96	Auto *
AP-105			BY-102			SX-106	08/94	Auto	TX-118	03/96	Auto
AP-106			BY-103			SX-107			TY-101	07/95	Auto
AP-107			BY-104			SX-108			TY-102	09/95	Auto
AP-108			BY-105			SX-109			TY-103	09/95	Auto
AW-101	08/95	Manual	BY-106			SX-110			TY-104	06/95	Auto
AW-102	05/96	Manual	BY-107			SX-111			TY-105	12/95	Auto
AW-103	05/96	Manual	BY-108			SX-112			TY-106	12/95	Auto
AW-104	01/96	Manual	BY-109			SX-113			U-101		
AW-105	06/96	Manual	BY-110			SX-114			U-102	01/96	Manual
AW-106	06/96	Manual	BY-111			SX-115			U-103	07/94	Auto
AX-101	09/95	Manual	BY-112			SY-101	07/94	Auto	U-104		
AX-102			C-101			SY-102	06/94	Manual	U-105	07/94	Auto
AX-103	09/95	Manual	C-102			SY-103	07/94	Manual	U-106	08/94	Auto
AX-104	10/96	Manual	C-103	08/94	Auto	T-101	05/95	Manual	U-107	08/94	Auto
AY-101	03/96	Manual	C-104			T-102	06/94	Auto	U-108	05/95	Manual
AY-102			C-105	05/96	Manual	T-103	07/95	Manual	U-109	07/94	Auto
AZ-101	08/96	Manual	C-106	02/96	Auto	T-104	12/95	Manual	U-110	01/96	Manual
AZ-102			C-107	04/95	Auto	T-105	07/95	Manual	U-111	01/96	Manual
B-101			C-108			T-106	07/95	Manual	U-112		
B-102	02/95	Manual	C-109			T-107	06/94	Auto	U-201		
B-103			C-110			T-108	10/95	Manual	U-202		
B-104			C-111			T-109	09/94	Manual	U-203		
B-105			C-112	03/96	Manual	T-110	05/95	Manual	U-204		
B-106			C-201			T-111	07/95	Manual			
B-107			C-202			T-112	09/95	Manual			
B-108			C-203			T-201					
B-109			C-204			T-202					
B-110						T-203					
B-111						T-204					
B-112	03/95	Manual									
Total East Area: 38						Total West Area: 65					

103 ENRAFs installed: 52 automatically entered into TMACS (*included are two TX tanks which are acceptance tested but not yet operative). 51 are manually entered into CASS.

TABLE A-8. TANK MONITOR AND CONTROL SYSTEM (TMACS)

October 31, 1996

*Note: Acceptance Testing has been completed on the following sensors***Sensors Automatically Monitored by TMACS**

EAST AREA	Temperatures		ENRAF Level Gauge	Pressure	Hydrogen	Gas Sample Flow
	Thermocouple Tree (TC)	Resistance Thermal Device (RTD)				
Tank Farm						
A-Farm (6 Tanks)						
AN-Farm (7 Tanks)	7			7		
AP-Farm (8 Tanks)						
AW-Farm (6 Tanks)						
AX-Farm (4 Tanks)						
AY-Farm (2 Tanks)						
AZ-Farm (2 Tanks)						
B-Farm (16 Tanks)						
BX-Farm (12 Tanks)	11		12			
BY-Farm (12 Tanks)	10	3				
C-Farm (16 Tanks)	15	1	3	1		
TOTAL EAST AREA (91 Tanks)	43	4	15	8	0	0
WEST AREA						
S-Farm (12 Tanks)	12		4		3	3
SX-Farm (15 Tanks)	14		1		7	7
SY-Farm (3 Tanks)	3		1	1	2	1
T-Farm (16 Tanks)	14	1	2			
TX-Farm (18 Tanks)	14		18(d)			
TY-Farm (6 Tanks)	6	3	6			
U-Farm (16 Tanks)	15		5		5	5
TOTAL WEST AREA (86 Tanks)	82	4	37	1	17	16
TOTALS (177 Tanks)	121	8	52	9(b)	17(c)	19(a)

(a) Tank SY-101 has 2 gas sample flow sensors plus 2 vent flow sensors.

(b) Each tank has low and high range sensors (9x2 = 18 sensors)

(c) Each tank has low and high range sensors (17x2 = 34 sensors)

(d) TX-106 and TX-117 are acceptance tested but not yet operative.

APPENDIX B

**DOUBLE SHELL TANK WASTE TYPE
AND SPACE ALLOCATION**

**TABLE B-1. DOUBLE-SHELL TANK WASTE TYPE AND SPACE ALLOCATION
OCTOBER 1996**

DOUBLE-SHELL TANK INVENTORY BY WASTE TYPE		SPACE DESIGNATED FOR SPECIFIC USE	
Complexed Waste (102-AN, 106-AN, 107-AN, 101-SY, 103-SY, (101-AY, 108-AP (DC))	4.53 Mgal	Spare Tanks (3) (1 Aging & 1 Non-Aging Waste Tank)	2.28 Mgal
Concentrated Phosphate Waste (102-AP)	1.1 Mgal	Segregated Tank Space (102-AP, 108-AP, 101-AY, 102-AN, 106-AN, 107-AN)	2.07 Mgal
Double-Shell Slurry and Slurry Feed (103-AN, 104-AN, 105-AN, 101-AP, 101-AW, 106-AW)	4.69 Mgal	Watch List Tank Space (103-AN, 104-AN, 105-AN, 101-SY, 103-SY, 101-AW)	0.71 Mgal
Aging Waste (NCAW) at 5M Na Dilute in Aging Tanks (101-AZ, 102-AZ)	1.22 Mgal 0.44 Mgal	Priority/Operational Tank Space (2) (101-AN, 102-SY, 102-AW, 106-AW)	2.69 Mgal
Dilute Waste (1) (101-AN, 103-AP, 106-AP, 107-AP, 108-AP 102-AW, 103-AW, 104-AW, 105-AW, 102-AY, 102-SY, 104-AP)	3.9 Mgal	Miscellaneous Head Space (101-AZ, 102-AZ, 104-AW, 106-AP)	0.18 Mgal
		Total Specific Use Space (10/31/96)	7.93 Mgal
		TOTAL DOUBLE-SHELL TANK SPACE	
NCRW, PFP and DST Settled Solids (All DST's)	3.22 Mgal	24 Tanks at 1140 Kgal	27.36 Mgal
		4 Tanks at 980 Kgal	3.92 Mgal
			31.28 Mgal
Total Inventory=	19.1 Mgal	Total Available Space	31.28 Mgal
		Double Shell Tank Inventory	19.1 Mgal
		Space Designated for Specific Use	7.93 Mgal
		Remaining Unallocated Space	4.25 Mgal

(1) Was reduced in volume by -0.0 Mgal this month (Evaporator WVR)

(2) Reduced by Saltwell Liquid pumping, and PFP Operations

(3) 241-101-AY: A minimum liquid level is set to provide extra protection against any bottom uplifting of the tank's steel liner. WHC-SD-WM-TI-357, "Waste Storage Tank Status and Leak Detection Criteria," specifies 64 in. as the minimum surface level measurement when the annulus system is in operation, and 18 in. if the annulus ventilation system is shut down. See also OSD-T-151-0007, "Unclassified Operation Specifications for the 241 AN, 241AP, 241AW, 241AY and 241SY Tank Farms." Because of space availability, waste is stored in 102-AY, the aging waste spare tank. In case of a leak, the contents of 102-AY will be distributed to any other DST(s) having available space.

Note: Net change in total inventory since last month: + 0.045 Mgal

WWPTOT

Table B-2. Double Shell Tank Waste Inventory for October 31, 1996

TANKS	INVENTORY	SOLIDS	TYPE	LEFT
101AW=	1128	84	DSSF	12
102AW=	99	33	DN	1041
103AW=	514	363	NCRW	626
104AW=	1121	267	DN	19
105AW=	440	286	NCRW	700
106AW=	321	224	DNDSS	819
101AY=	918	94	DC	62
102AY=	841	30	DN	139
101AZ=	870	35	NCAW	110
102AZ=	922	95	NCAW	58
101AN=	116	33	DN	1024
102AN=	1079	89	CC	61
103AN=	956	373	DSS	184
104AN=	1055	264	DSSF	85
105AN=	1128	0	DSSF	12
106AN=	416	17	CC	724
107AN=	1056	247	CC	84
101SY=	1114	41	CC/DSS	26
102SY=	610	123	DN/PT	530
103SY=	748	362	CC/DSS	392
101AP=	1043	0	DSSF	97
102AP=	1097	0	CP	43
103AP=	23	1	DN	1117
104AP=	26	0	DN	1114
105AP=	1123	154	DN	17
106AP=	262	0	DN	878
107AP=	21	0	DN	1119
108AP=	46	0	DC	1094
TOTAL=	19093		TOTAL=	12197

NOTE: Solids Levels Adjusted to Most Current Available Data

TOTAL SPACE AVAILABLE	
NON-AGING	27360
AGING =	3920
TOTAL=	31280

SEGREGATED SPACE	
* 101AW=	12
102AP=	43
108AP=	1094
* 101SY=	26
* 103SY=	392
101AY=	62
102AN=	61
* 103AN=	184
* 104AN=	85
* 105AN=	12
106AN=	724
107AN=	84
TOTAL=	2779

(*) Watch List Tanks

MISC. HEADSPACE	
104AW=	19
101AZ=	110
102AZ=	58
TOTAL=	187

PRIORITY SPACE	
102SY=	530
101AN=	1024
TOTAL=	1554

INVENTORY CHANGE	
09/96 TOTAL	19048
10/96 TOTAL	19093
INCREASE=	45

USABLE SPACE	
101AP=	97
103AP=	1117
104AP=	1114
105AP=	17
106AP=	878
107AP=	1119
103AW=	626
105AW=	700
102AY=	139
102AW=	1041
106AW=	819
TOTAL=	7467
EVAP. OPERATIONS	-1140
SPARES	-2280
USABLE LEFT=	4247

USABLE SPACE CHANGE	
09/96 TOTAL SPACE	4260
10/96 TOTAL SPACE	4247
DECREASE=	13

PRIORITY SPACE CHANGE	
09/96 TOTAL SPACE	1571
10/96 TOTAL SPACE	1554
DECREASE=	17

Inventory Calculation by Waste Type:

COMPLEXED WASTE	
102AN=	990 (CC)
106AN=	399 (CC)
107AN=	809 (CC)
101SY=	1073 (CC & DSS)
103SY=	386 (CC, DSS & SWL)
101AY=	824 (DC)
108AP=	46 (DC)
TOTAL=	4527

NCRW SOLIDS (PD)	
103AW=	363
105AW=	286
TOTAL=	649

PFP SOLIDS (PT)	
102SY=	123
TOTAL=	123

CONCENTRATED PHOSPHATE (CP)	
102AP=	1097
TOTAL=	1097

DILUTE WASTE (DN)	
103AP=	22
105AP=	969
106AP=	262
107AP=	21
101AN=	83
102AW=	66
104AW=	854
102AY=	811
104AP=	26
103AW=	151
105AW=	154
102SY=	487
TOTAL=	3906

NCAW (AGING WASTE) (@ 5M Na)	
101AZ=	791
102AZ=	434
AT EM N	1225
DNF	437
TOTAL=	1567

DSS/DSSF	
101AP=	1043
103AN=	583
104AN=	791
105AN=	1128
101AW=	1044
106AW=	97
TOTAL=	4586

GRAND TOTALS	
CC=	3657
DC=	870
NCRW SOLIDS=	649
DST SOLIDS=	2313
PFP SOLIDS=	123
AGING SOLIDS=	130
CP=	1097
NCAW=	1662
DSS/DSSF=	4686
DILUTE=	3906
TOTAL=	19093

NOTE: All Values are in Kilogallons.

INV1096

Table B-2. Double Shell Tank Waste Inventory for October 31, 1996

TOTAL AVAILABLE SPACE AS OF OCTOBER 31, 1996:			12187 KGALS	
SEGREGATED TANK SPACE: (*)Watch List Tanks	TANK	WASTE TYPE	AVAILABLE SPACE	
	* 101-AW	DSSF	12 KGALS	
	102-AP	CP	43 KGALS	
	108-AP	DC	1094 KGALS	
	* 101-SY	CC/DSS	26 KGALS	
	* 103-SY	CC/DSS	392 KGALS	
	101-AY	DC	62 KGALS	
	102-AN	CC	61 KGALS	
	* 103-AN	DSS	184 KGALS	
	* 104-AN	DSSF	85 KGALS	
	* 105-AN	DSSF	12 KGALS	
	106-AN	CC	724 KGALS	
	107-AN	CC	84 KGALS	
	TOTAL=		2779 KGALS	
AVAILABLE TANK SPACE=		12187 KGALS		
MINUS SEGREGATED SPACE=		-2779 KGALS		
TOTAL AVAILABLE SPACE AFTER SEGREGATION=		9408 KGALS		
PRIORITY TANK SPACE:	TANK	WASTE TYPE	AVAILABLE SPACE	
	102-SY	DN	530 KGALS	
	101-AN	DN	1024 KGALS	
	TOTAL=		1554 KGALS	
AVAILABLE SPACE AFTER SEGREGATION=		9408 KGALS		
MINUS PRIORITY SPACE=		-1554 KGALS		
TOTAL AVAILABLE SPACE AFTER PRIORITY=		7854 KGALS		
MISCELLANEOUS HEADSPACE:	TANK	WASTE TYPE	AVAILABLE SPACE	
	104-AW	DN	19 KGALS	
	101-AZ	AW	110 KGALS	
	102-AZ	AW	58 KGALS	
	TOTAL=		187 KGALS	
AVAILABLE SPACE AFTER PRIORITY=		7854 KGALS		
MINUS MISCELLANEOUS HEADSPACE=		-187 KGALS		
TOTAL AVAILABLE SPACE AFTER HEADSPACE=		7667 KGALS		
USABLE TANK SPACE:	TANK	WASTE TYPE	AVAILABLE SPACE	
	101-AP	DSSF	97 KGALS	
	103-AP	DN	1117 KGALS	
	104-AP	DN	1114 KGALS	
	105-AP	DN	17 KGALS	
	106-AP	DN	878 KGALS	
	107-AP	DN	1119 KGALS	
	103-AW	NCRW	626 KGALS	
	105-AW	NCRW	700 KGALS	
	102-AY	DN	139 KGALS	
	EVAPORATOR FEED TANK	102-AW	DN	1041 KGALS
	EVAPORATOR RECEIVER TANK	106-AW	DSSF	819 KGALS
	TOTAL AVAILABLE USABLE TANK SPACE=		7667 KGALS	
	EVAPORATOR OPERATIONAL TANK SPACE:		-1140 KGALS	
SPARE TANK SPACE:		-2280 KGALS		
TOTAL TANK SPACE AVAILABLE AFTER ALL DEDUCTIONS=		4247 KGALS		

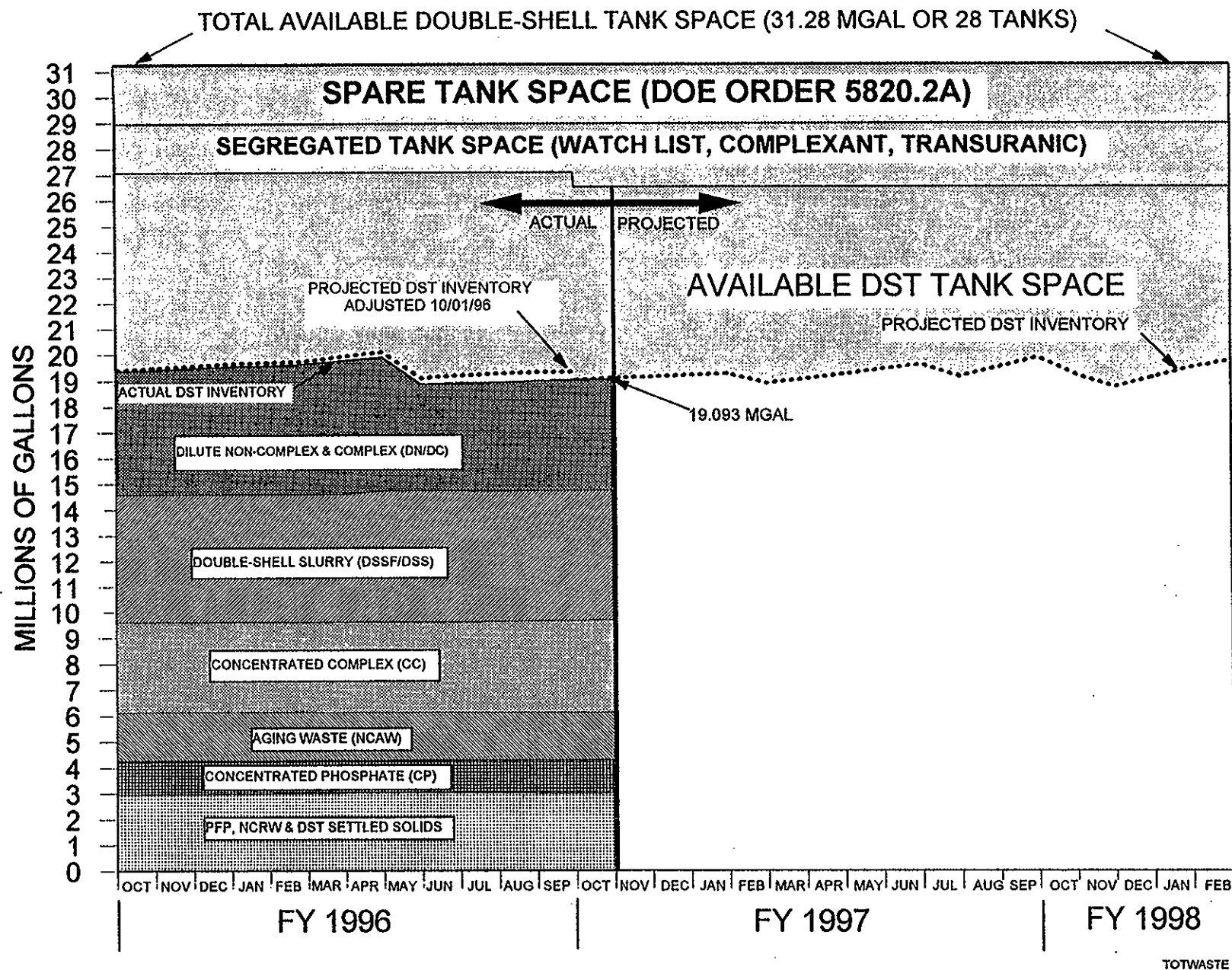


FIGURE B-1. TOTAL DOUBLE-SHELL TANK INVENTORY

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APPENDIX C

**TANK AND EQUIPMENT CODE
AND STATUS DEFINITIONS**

C. TANK AND EQUIPMENT CODE/STATUS DEFINITIONS
October 31, 1996

1. TANK STATUS CODES

WASTE TYPE

AGING Aging Waste (Neutralized Current Acid Waste [NCAW])
CC Complexant Concentrate Waste
CP Concentrated Phosphate Waste
DC Dilute Complexed Waste
DN Dilute Non-Complexed Waste
DSS Double-Shell Slurry
DSSF Double-Shell Slurry Feed
NCPLX Non-Complexed Waste
PD/PN Plutonium-Uranium Extraction (PUREX) Neutralized Cladding
Removal Waste (NCRW), transuranic waste (TRU)
PT Plutonium Finishing Plant (PFP) TRU Solids

TANK USE (DOUBLE-SHELL TANKS ONLY)

CWHT Concentrated Waste Holding Tank
DRCVR Dilute Receiver Tank
EVFD Evaporate Feed Tank
SRCVR Slurry Receiver Tank

2. SOLID AND LIQUID VOLUME DETERMINATION METHODS

F Food Instrument Company (FIC) Automatic Surface Level Gauge
E ENRAF Surface Level Gauge (being installed to replace FICs)
M Manual Tape Surface Level Gauge
P Photo Evaluation
S Sludge Level Measurement Device

3. DEFINITIONS

WASTE TANKS - GENERAL

Waste Tank Safety Issue

A potentially unsafe condition in the handling of waste material in underground storage tanks that requires corrective action to reduce or eliminate the unsafe condition.

Watch List Tank

An underground storage tank containing waste that requires special safety precautions because it may have a serious potential for release of high level radioactive waste because of uncontrolled increases in temperature or pressure. Special restrictions have been placed on these tanks by "Safety Measures for Waste Tanks at Hanford Nuclear Reservation," Section 3137 of the National Defense Authorization Act for Fiscal Year 1991, November 5, 1990, Public Law 101-510, (also known as the Wyden Amendment).

Characterization

Characterization is understanding the Hanford tank waste chemical, physical, and radiological properties to the extent necessary to insure safe storage and interim operation, and ultimate disposition of the waste.

WASTE TYPES

Aging Waste (AGING)

High level, first cycle solvent extraction waste from the PUREX plant (NCAW)

Concentrated Complexant (CC)

Concentrated product from the evaporation of dilute complexed waste.

Concentrated Phosphate Waste (CP)

Waste originating from the decontamination of the N Reactor in the 100 N Area. Concentration of this waste produces concentrated phosphate waste.

Dilute Complexed Waste (DC)

Characterized by a high content of organic carbon including organic complexants:

ethylenediaminetetra-acetic acid (EDTA), citric acid, and hydroxyethyl-ethylenediaminetriacetic acid (HEDTA), being the major complexants used. Main sources of DC waste in the DST system are saltwell liquid inventory (from SSTs).

Dilute Non-Complexed Waste (DN)

Low activity liquid waste originating from T and S Plants, the 300 and 400 Areas, PUREX facility (decladding supernatant and miscellaneous wastes), 100 N Area (sulfate waste), B Plant, saltwells, and PFP (supernate).

Double-Shell Slurry (DSS)

Waste that exceeds the sodium aluminate saturation boundary in the evaporator without exceeding receiver tank composition limits. For reporting purposes, DSS is considered a solid.

Double-Shell Slurry Feed (DSSF)

Waste concentrated just before reaching the sodium aluminate saturation boundary in the evaporator without exceeding receiver tank composition limits. This form is not as concentrated as DSS.

Non-complexed (NCPLX)

General waste term applied to all Hanford Site (NCPLX) liquors not identified as complexed.

PUREX Decladding (PD)

PUREX Neutralized Cladding Removal Waste (NCRW) is the solids portion of the PUREX plant neutralized cladding removal waste stream; received in Tank Farms as a slurry. NCRW solids are classified as transuranic (TRU) waste.

PFP TRU Solids (PT)

TRU solids fraction from PFP Plant operations.

Drainable Interstitial Liquid (DIL)

Interstitial liquid that is not held in place by capillary forces, and will therefore migrate or move by gravity. (See also Section 4)

Supernate

The liquid above the solids in waste storage tanks. (See also Section 4)

Ferrocyanide

A compound of iron and cyanide commonly expressed as FeCN . The actual formula for the ferrocyanide anion is $[\text{Fe}(\text{CN})_6]^{4-}$.

INTERIM STABILIZATION (Single-Shell Tanks only)

Interim Stabilized (IS)

A tank which contains less than 50 Kgallons of drainable interstitial liquid and less than 5 Kgallons of supernatant liquid. If the tank was jet pumped to achieve interim stabilization, then the jet pump flow must also have been at or below 0.05 gpm before interim stabilization criteria is met.

Jet Pump

The jet pump system includes 1) a jet assembly with foot valve mounted to the base of two pipes that extend from the top of the well to near the bottom of the well casing inside the saltwell screen, 2) a centrifugal pump to supply power fluid to the down-hole jet assembly, 3) flexible or rigid transfer jumpers, 4) a flush line, and 5) a flowmeter. The jumpers contain piping, valves, and pressure and limit switches.

The centrifugal pump and jet assembly are needed to pump the interstitial liquid from the saltwell screen into the pump pit, nominally a 40-foot elevation rise. The power fluid passes through a nozzle in the jet assembly and acts to convert fluid pressure head to velocity head, thereby reducing the pressure in the jet assembly chamber. The reduction in pressure allows the interstitial liquid to enter the jet assembly chamber and mix with the power fluid. Velocity head is converted to pressure head above the nozzle, lifting power fluid, and interstitial liquid to the pump pit. Pumping rates vary from 0.05 gallons to about 4 gpm.

Saltwell Screen

The saltwell system is a 10-inch diameter saltwell casing consisting of a stainless steel saltwell screen welded to a Schedule 40 carbon steel pipe. The casing and screen are to be inserted into the 12-inch tank riser located in the pump pit. The stainless steel screen portion of the system will extend through the tank waste to near the bottom of the tank. The saltwell screen portion of the casing is an approximately 10-foot length of 300 Series, 10-inch diameter, stainless steel pipe with screen openings (slots) of 0.05 inches.

Emergency Pumping Trailer

A 45-foot tractor-type trailer is equipped to provide storage space and service facilities for emergency pumping equipment: this consists of two dedicated jet pump jumpers and two jet pumps, piping and dip tubes for each, two submersible pumps and attached piping, and a skid-mounted Weight Factor Instrument Enclosure (WFIE) with an air compressor and electronic recording instruments. The skid also contains a power control station for the pumps, pump pit leak detection, and instrumentation. A rack for over 100 feet of overground double-contained piping is also in the trailer.

INTRUSION PREVENTION (ISOLATION) Single-Shell Tanks only

Partially Interim Isolated (PI)

The administrative designation reflecting the completion of the physical effort required for Interim Isolation except for isolation of risers and piping that is required for jet pumping or for other methods of stabilization.

Interim Isolated (II)

The administrative designation reflecting the completion of the physical effort required to minimize the addition of liquids into an inactive storage tank, process vault, sump, catch tank, or diversion box. In June 1993, Interim Isolation was replaced by Intrusion Prevention.

Intrusion Prevention (IP)

Intrusion Prevention is the administrative designation reflecting the completion of the physical effort required to minimize the addition of liquids into an inactive storage tank, process vault, sump, catch tank, or diversion box. Under no circumstances are electrical or instrumentation devices disconnected or disabled during the intrusion prevention process (with the exception of the electrical pump).

Controlled, Clean, and Stable (CCS)

Controlled, Clean, and Stable reflects the completion of several objectives: "Controlled" - provide remote monitoring for required instrumentation and implement controls required in the TWRS Authorization Basis; "Clean" - remove surface soil contamination and downpost the Tank Farms to RBA/URMA/RA radiological control status, remove abandoned equipment, and place reusable equipment in compliant storage; and "Stable" - remove pumpable liquids from the SSTs and IMUSTs and isolate the tanks.

TANK INTEGRITY

Sound

The integrity classification of a waste storage tank for which surveillance data indicate no loss of liquid attributed to a breach of integrity.

Assumed Leaker

The integrity classification of a waste storage tank for which surveillance data indicate a loss of liquid attributed to a breach of integrity.

Assumed Re-Leaker

A condition that exists after a tank has been declared as an "assumed leaker" and then the surveillance data indicates a new loss of liquid attributed to a breach of integrity.

TANK INVESTIGATION

Intrusion

A term used to describe the infiltration of liquid into a waste tank.

SURVEILLANCE INSTRUMENTATION

Drywells

Drywells are vertical boreholes with 6-inch (internal diameter) carbon steel casings positioned radially around SSTs. These wells range between 50 and 250 feet in depth, and are monitored between the range of 50 to 150 feet. The wells are sealed when not in use. They are called drywells because they do not penetrate to the water table and are therefore usually "dry." There are 759 drywells.

Monitoring is done by gamma radiation or neutron-moisture sensors to obtain scan profiles of radiation or moisture in the soil as a function of well depth, which could be indicative of tank leakage.

Two single-shell tanks (C-105 and C-106) are currently monitored monthly by gamma radiation sensors. The remaining drywells are monitored by gamma radiation sensors on request. Monitoring by neutron-moisture sensors is done only on request.

Laterals

Laterals are horizontal drywells positioned under single-shell waste storage tanks to detect radionuclides in the soil which could be indicative of tank leakage. These drywells are monitored by radiation detection probes. Laterals are 4-inch inside diameter steel pipes located 8 to 10 feet below the tank's concrete base. There are three laterals per tank. Laterals are located only in A and SX farms.

Surface Levels

The surface level measurements in all waste storage tanks are monitored by manual or automatic conductivity probes, and recorded and transmitted or entered into the Computer Automated Surveillance System (CASS).

Automatic FIC

An automatic waste surface level measurement device is manufactured by the Food Instrument Company (FIC). The instrument consists of a conductivity electrode (plummet) connected to a calibrated steel tape, a steel tape reel housing and a controller that automatically raises and lowers the plummet to obtain a waste surface level reading. The controller can provide a digital display of the data and also transmit the reading to the CASS. Some tanks have gauges connected to CASS and others are read manually. FICs are being replaced by ENRAF detectors (see below).

ENRAF 854 ATG Level Detector

FICs and some manual tapes are in the process of being replaced by the ENRAF ATG 854 level detector. The ENRAF gauge, fabricated by ENRAF Incorporated, determines waste level by detecting variations in the weight of a displacer suspended in the tank waste. The displacer is connected to a wire wound onto a precision measuring drum. A level causes a change in the weight of the displacer which will be detected by the force transducer. Electronics within the gauge causes the servo motor to adjust the position of the displacer and compute the tank level based on the new position of the displacer drum. The gauge displays the level in decimal inches. The first few ENRAFs that received remote reading capability transmit liquid level data via analog output to the Tank Monitor and Control System (TMACS). The remaining ENRAFs and future installations will transmit digital level data to TMACS via an ENRAF Computer Interface Unit (CIU). The CIU allows fully remote communication with the gauge, minimizing tank farm entry.

Annulus

The annulus is the space between the inner and outer shells on DSTs only. Drain channels in the insulating and/or supporting concrete carry any leakage to the annulus space where conductivity probes are installed. Alarms from the annunciators are received by CASS. Continuous Air Monitoring (CAM) alarms are also located in the annulus. The annulus conductivity probes and radiation detectors are the primary means of leak detection for all DSTs.

Liquid Observation Well (LOW)

In-tank liquid observation wells are used for monitoring the interstitial liquid level (ILL) in single-shell waste storage tanks. The wells are usually constructed of fiberglass or TEFZEL-reinforced epoxy-polyester resin (TEFZEL, a trademark of E. I. du Pont de Nemours & Company). There are a few LOWs constructed of steel. LOWs are sized to extend to within 1 inch of the bottom of the waste tank, are sealed at their bottom ends and have a nominal outside diameter of 3.5 inches. Two probes are used to monitor changes in the ILL; gamma and neutron, which can indicate intrusions or leakage by increases or decreases in the ILL. There are 65 LOWs (64 are in operation) installed in SSTs that contain or are capable of containing greater than 50 Kgallons of drainable interstitial liquid, and in two DSTs only. The LOWs installed in two DSTs, (102-SY and 103-AW Tanks), are constructed of steel and are used for special, rather than routine, surveillance purposes only.

Thermocouple (TC)

A thermocouple is a thermoelectric device used to measure temperature. More than one thermocouple on a device (probe) is called a thermocouple tree. In DSTs there may be one or more thermocouple trees in risers in the primary tank. In addition, in DSTs only, there are thermocouple elements installed in the insulating concrete, the lower primary tank knuckle, the secondary tank concrete foundation, and in the outer structural concrete.

These monitor temperature gradients within the concrete walls, bottom of the tank, and the domes. In SSTs, one or more thermocouples may be installed directly in a tank, although some SSTs do not have any trees installed. A single

thermocouple (probe) may be installed in a riser, or lowered down an existing riser or LOW. There are also four thermocouple laterals beneath Tank 105-A in which temperature readings are taken in 34 thermocouples.

In-tank Photographs and Videos

In-tank photographs and videos may be taken to aid in resolving in-tank measurement anomalies and determine tank integrity. Photographs and videos help determine sludge and liquid levels by visual examination.

TERMS/ACRONYMS

<u>CASS</u>	Computer Automated Surveillance System
<u>CCS</u>	Controlled, Clean and Stable (tank farms)
<u>II</u>	Interim Isolated
<u>IP</u>	Intrusion Prevention Completed
<u>IS</u>	Interim Stabilized
<u>MI/FIC/ENRAF</u>	Manual Tape, Food Instrument Corporation, ENRAF Corporation (surface level measurement devices)
<u>OSD</u>	Operating Specifications Document
<u>OSR</u>	Operational Safety Requirements (OSRs are sections in SARs - see below)
<u>PI</u>	Partial Interim Isolated
<u>SAR</u>	Safety Analysis Reports
<u>SHMS</u>	Standard Hydrogen Monitoring System
<u>TMACS</u>	Tank Monitor and Control System
<u>TPA</u>	Hanford Federal Facility Consent and Compliance Order, "Washington State Department of Ecology, U. S. Environmental Protection Agency, and U. S. Department of Energy," Fourth Amendment, 1994 (Tri-Party Agreement)
<u>USQ</u>	Unreviewed Safety Question
<u>Wyden Amendment</u>	"Safety Measures for Waste Tanks at Hanford Nuclear Reservation," Section 3137 of the National Defense Authorization Act for Fiscal Year 1991, November 5, 1990, Public Law 101-510.

4. INVENTORY AND STATUS BY TANK - VOLUME CALCULATIONS/DEFINITIONS FOR TABLE E-6 (SINGLE-SHELL TANKS)

COLUMN HEADING	VOLUME CALCULATIONS/DEFINITIONS
Total Waste	Solids volume plus Supernatant liquid. Solids include sludge and saltcake (see definitions below) Supernatant Liquid Drainable Liquid Remaining minus Drainable Interstitial. Supernate is the clear liquid floating on the surface of the waste. Supernate is usually derived by subtracting the solids level measurement from the liquid level measurement. In some cases, the supernatant volume includes floating solid crusts because their volume cannot be measured. In-tank photographs or videos are useful in estimating the liquid volumes; the area of solids covered and the average depth can be estimated.

COLUMN HEADING	VOLUME CALCULATIONS/DEFINITIONS
Drainable Interstitial Liquid	Drainable Liquid Remaining minus Supernate. Drainable interstitial liquid is calculated based on the saltcake and sludge volumes, using average porosity values or actual data for each tank, when available. Interstitial liquid is liquid that fills the interstitial spaces of the solids waste. Drainable interstitial liquid is calculated based on the saltcake and sludge volumes in the tank. The sum of the interstitial liquid contained in saltcake and sludge is the initial volume of drainable interstitial liquid. The volume reported as Drainable Interstitial Liquid is the initial volume of drainable interstitial liquid minus interstitial liquid removed by pumping.
Pumped This Month	Net total gallons of liquid pumped from the tank during the month. If supernate is present, pump production is first subtracted from the supernatant volume. The remainder is then subtracted from the drainable interstitial liquid volume. The total pumped volume is subtracted from drainable liquid remaining and pumpable liquid remaining. Pump production takes into account the amount of water added to the tank during the month (if any).
Total Pumped	Cumulative net total gallons of liquid pump from 1979 to date.
Drainable Liquid Remaining	Supernate plus Drainable Interstitial. (See Supernatant Liquid and Drainable Interstitial Liquid above for definitions). The total Drainable Liquid Remaining is the sum of drainable interstitial liquid and supernate minus total gallons pumped.
Pumpable Liquid Remaining	Drainable Liquid Remaining minus undrainable heel volume. (Dish bottom tanks have a "heel" where liquids can collect: flat bottom tanks do not). (See Drainable Liquid Remaining and Pumped this Month for definitions). Not all drainable interstitial liquid is pumpable. It is assumed that drainable interstitial liquid on top of the undrainable heel in sludge or saltcake, is not jet pumpable. Therefore, pumpable interstitial liquid is the initial volume of drainable interstitial liquid minus the amount of interstitial liquid on top of the heel. The volume shown as Pumpable Liquid Remaining is the sum of pumpable interstitial liquid and supernate minus total gallons pumped.
Sludge	Solids formed during sodium hydroxide additions to waste. Sludge usually was in the form of suspended solids when the waste was originally received in the tank from the waste generator. In-tank photographs or videos may be used to estimate the volume.
Saltcake	Results from crystallization and precipitation after concentration of liquid waste, usually in an evaporator. If saltcake is layered over sludge, it is only possible to measure total solids volume. In-tank photographs or videos may be used to estimate the saltcake volume.
Solids Volume Update	Indicates the latest update of any change in the solids volume.
Solids Update Source - See Footnote	Indicates the source or basis of the latest solids volume update.
Last In-tank Photo	Date of last in-tank photographs taken.
Last In-tank Video	Date of last in-tank video taken.
See Footnotes for These Changes	Indicates any change made the previous month. A footnote explanation for the change follows the Inventory and Status by Tank section (Table E-6).

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APPENDIX D

**TANK FARM CONFIGURATION, STATUS, AND
FACILITY CHARTS**

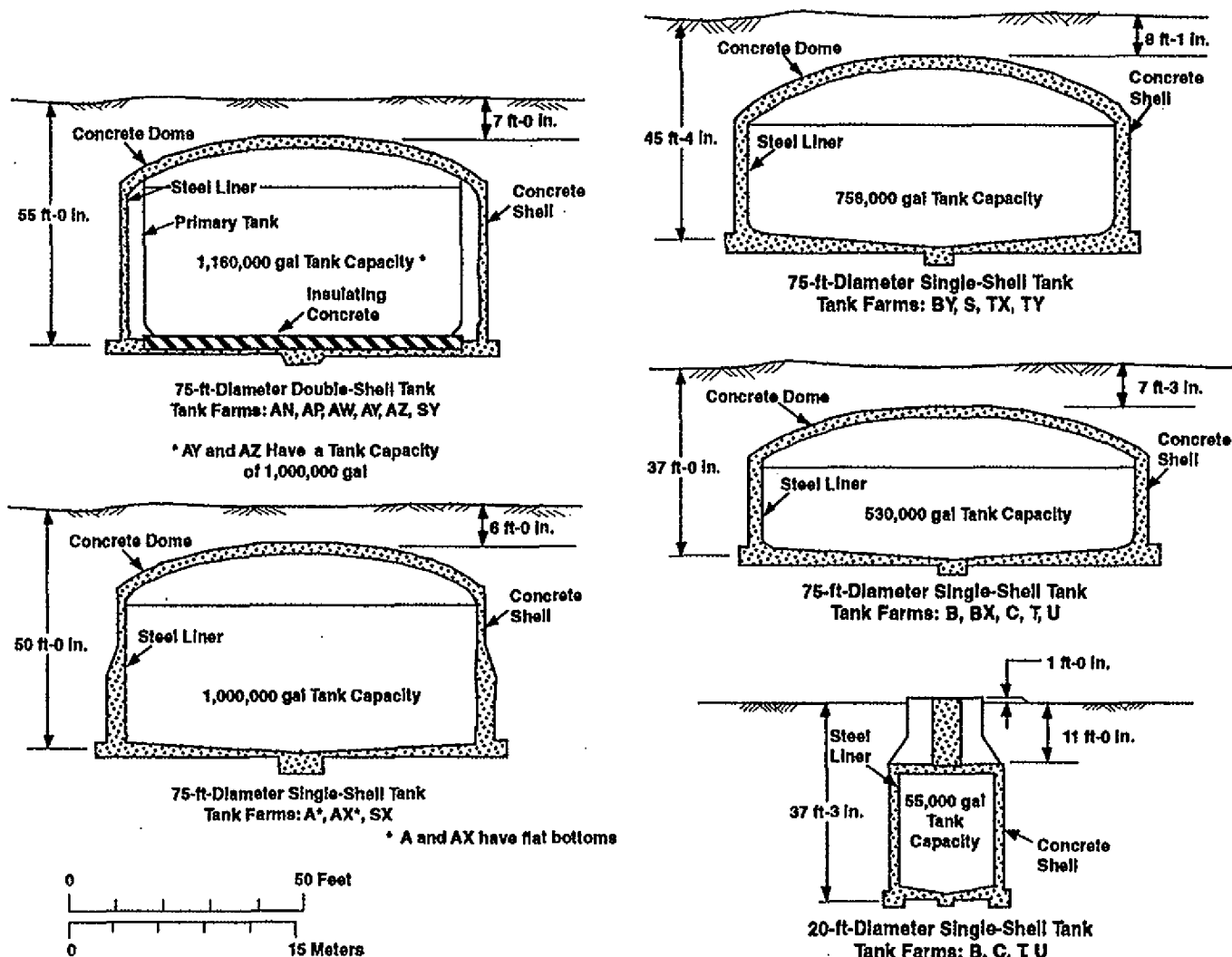


FIGURE D-1. HIGH-LEVEL WASTE TANK CONFIGURATION

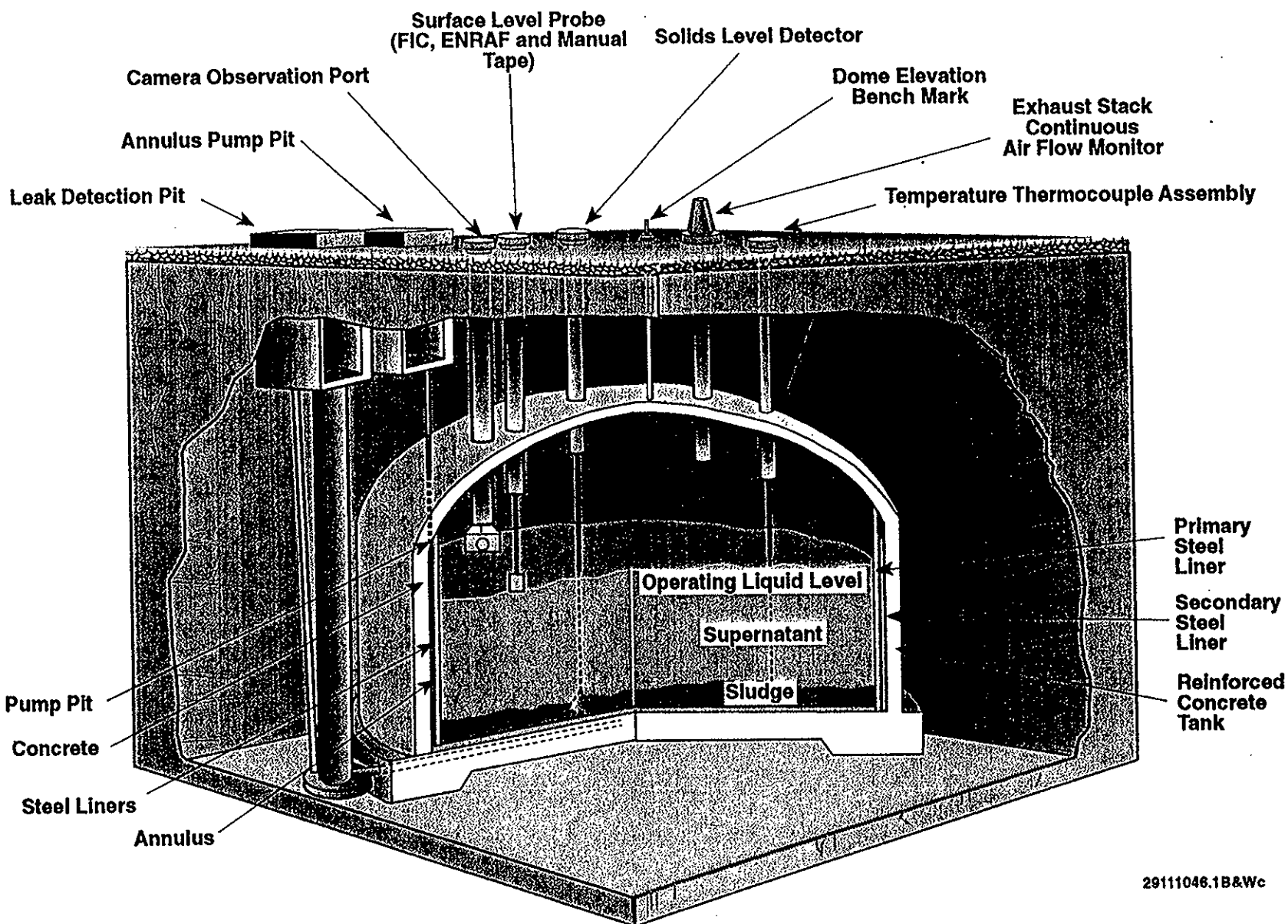
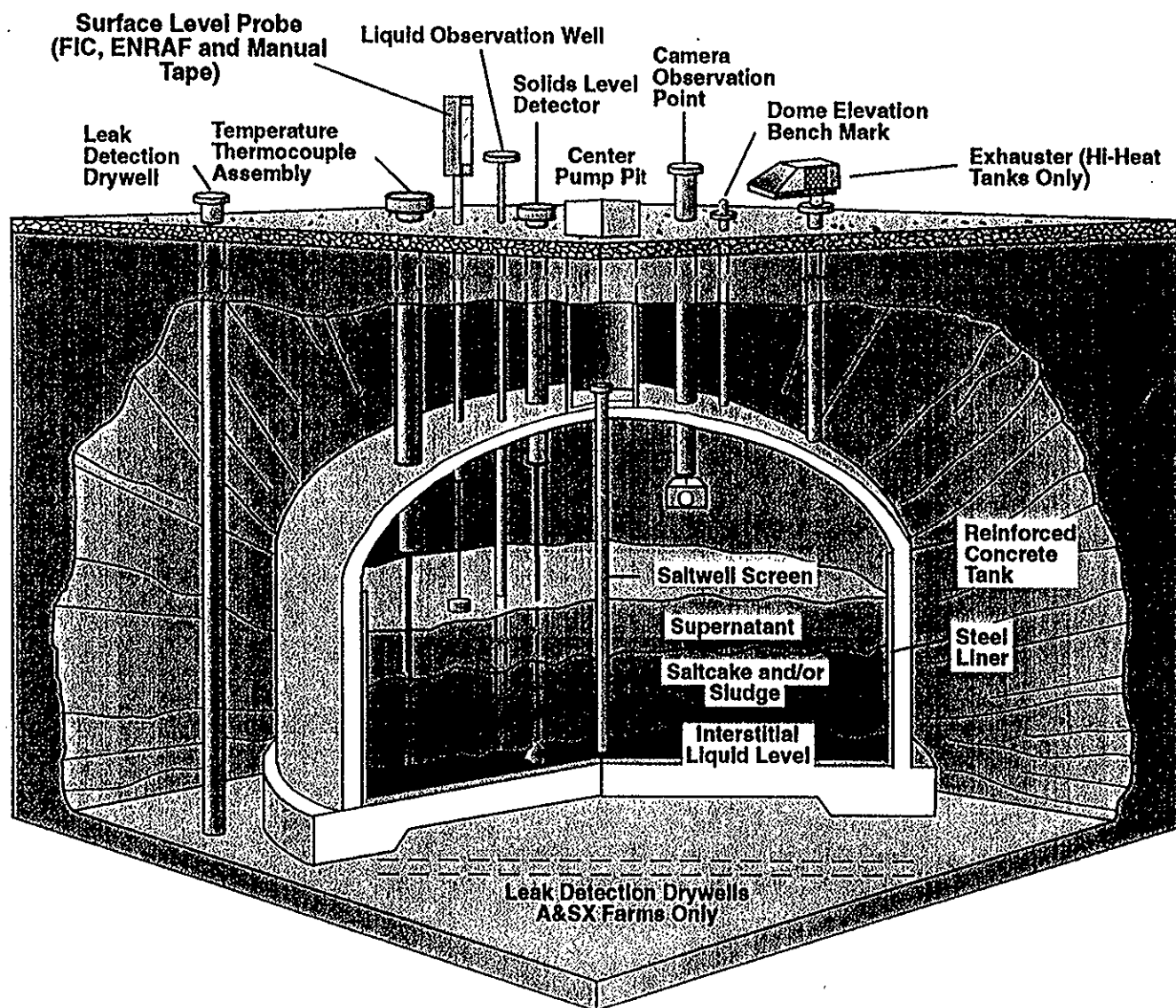


FIGURE D-2. DOUBLE-SHELL TANK INSTRUMENTATION CONFIGURATION



29111046.2B&Wb

FIGURE D-3. SINGLE-SHELL TANK INSTRUMENTATION CONFIGURATION

THE HANFORD TANK FARM FACILITY CHARTS (colored-coded foldouts)
ARE ONLY BEING INCLUDED IN THIS REPORT ON A QUARTERLY BASIS
(i. e., months ending March 31, June 30, September 30, December 31)

NOTE: COPIES OF THE FACILITY CHARTS CAN BE OBTAINED FROM
DAN FOLEY, 200-E MULTI-MEDIA SERVICES,
373-3140, 2750E/C-143
ALMOST ANY SIZE IS AVAILABLE, AND CAN BE LAMINATED.
Charge code required

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APPENDIX E

**MONTHLY SUMMARY
TANK USE SUMMARY
PUMPING RECORD, LIQUID STATUS AND PUMPABLE
LIQUID REMAINING IN TANK FARMS
INVENTORY SUMMARY BY TANK FARM
INVENTORY AND STATUS BY TANK**

TABLE E-1. MONTHLY SUMMARY

TANK STATUS

October 31, 1996

	200 EAST AREA	200 WEST AREA	TOTAL
IN SERVICE	25	03	28 (1)
OUT OF SERVICE	66	83	149
SOUND	59	51	110
ASSUMED LEAKER	32	35	67
INTERIM STABILIZED	58	57	115 (2)
ISOLATED			
PARTIAL INTERIM	21	30	51
INTRUSION PREVENTION COMPLETE	55	53	108
CONTROLLED, CLEAN, AND STABLE	12	24	36

WASTE VOLUMES (Kgallons)						
	200 EAST AREA	200 WEST AREA	TOTAL	SST TANKS	DST TANKS	TOTAL
SUPERNATANT						
AGING Aging waste	1662	0	1662	0	1662	1662
CC Complexant concentrate waste	1802	1455	3257	3	3254	3257
CP Concentrated phosphate waste	1097	0	1097	0	1097	1097
DC Dilute complexed waste	871	1	872	2	870	872
DN Dilute non-complexed waste	3184	0	3184	0	3184	3184
DN/PD Dilute non-complex/PUREX TRU solid	311	0	311	0	311	311
DN/PT Dilute non-complex/PFP TRU solids	0	539	539	0	539	539
NCPLX Non-complexed waste	207	279	486	486	0	486
DSSF Double-shell slurry feed	4433	48	4481	57	4424	4481
TOTAL SUPERNATANT	13567	2322	15889	548	15341	15889
SOLIDS						
Double-shell slurry	937	0	937	0	937	937
Sludge	8486	6251	14737	12037	2700	14737
Saltcake	6280	16963	23243	23128	115	23243
TOTAL SOLIDS	15703	23214	38917	35165	3752	38917
TOTAL WASTE	29270	25536	54806	35713	19093	54806
AVAILABLE SPACE IN TANKS	11239	948	12187	0	12187	12187
DRAINABLE INTERSTITIAL	1972	4075	6047	5842	205	6047
DRAINABLE LIQUID REMAINING	15540	6397	21937	6391	15546	21937

(1) Includes six double-shell tanks on Hydrogen Watch List not currently allowed to receive waste, AN-103, AN-104, AN-105, AW-101, SY-101, and SY-103.

(2) Includes one tank (B-202) which does not meet current established supernatant and interstitial liquid stabilization criteria.

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TABLE E-2. TANK USE SUMMARY

October 31, 1996

TANK FARMS	TANKS RECEIVING WASTE TRANSFERS	SOUND	ASSUMED LEAKER	PARTIAL INTERIM	ISOLATED TANKS		INTERIM TABILIZED TANKS
					INTRUSION PREVENTION COMPLETED	CONTROLLED CLEAN, AND STABLE	
EAST							
A	0	3	3	2	4	0	5
AN	7 (1)	7	0	0	0		0
AP	8	8	0	0	0		0
AW	6 (1)	6	0	0	0		0
AX	0	2	2	1	3		3
AY	2	2	0	0	0		0
AZ	2	2	0	0	0		0
B	0	6	10	0	16		16
BX	0	7	5	6	12	12	12
BY	0	7	5	5	7		8
C	0	9	7	7	13		14
Total	25	59	32	21	55	12	58
WEST							
S	0	11	1	10	2		2
SX	0	5	10	6	9		9
SY	3 (1)	3	0	0	0		0
T	0	9	7	5	11		14
TX	0	10	8	0	18	18	18
TY	0	1	5	0	6	6	6
U	0	12	4	9	7		8
Total	3	51	35	30	53	24	57
TOTAL	28	110	67	51	108	36	115

(1) Six Double-Shell Tanks on the Hydrogen Tank Watch List are not currently receiving waste transfers (AN-103, 104, 105, AW-101, SY-101 and 103).

(2) Includes tank B-202 which no longer meets established supernatant interstitial liquid stabilization criteria.

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**TABLE E-3. PUMPING RECORD, LIQUID STATUS AND PUMPABLE
LIQUID REMAINING IN TANK FARMS**

October 31, 1996

TANK FARMS	Waste Volumes (Kgallons)						
	PUMPED THIS MONTH	PUMPED FY TO DATE	CUMULATIVE TOTAL PUMPED 1979 TO DATE	SUPERNATANT LIQUID	DRAINABLE INTERSTITIAL REMAINING	DRAINABLE LIQUID REMAINING	PUMPABLE LIQUID REMAINING
EAST							
A	0.0	0.0	150.5	9	441	450	441
AN	N/A	N/A	N/A	4219	51	4270	N/A
AP	N/A	N/A	N/A	3486	11	3497	N/A
AW	N/A	N/A	N/A	2345	135	2480	N/A
AX	0.0	0.0	13.0	3	370	373	344
AY	N/A	N/A	N/A	1635	4	1639	N/A
AZ	N/A	N/A	N/A	1662	4	1666	N/A
B	0.0	0.0	0.00	15	164	179	80
BX	0.0	0.0	200.2	21	107	129	78
BY	3.5	3.5	1567.7	0	511	511	388
C	0.0	0.0	103.0	172	174	346	272
Total	3.5	3.5	2034.4	13667	1972	15540	1603
WEST							
S	0.0	0.0	853.6	58	1168	1226	1133
SX	0.0	0.0	113.2	63	1298	1361	1445
SY	N/A	N/A	N/A	1994	0	1994	N/A
T	5.2	5.2	134.9	31	190	221	178
TX	0.0	0.0	1205.7	5	250	255	0
TY	0.0	0.0	29.9	3	31	34	0
U	0.0	0.0	0.0	168	1138	1306	1377
Total	5.2	5.2	2337.3	2322	4075	6397	4133
TOTAL	8.7	8.7	4371.7	15889	6047 (1)	21937	5736 (1)

(1) Volume based on 21% (sludge waste) and 50% (saltcake waste) liquid in solid (porosity) value,
per WHC-SD-W236A-ES-012, Rev. 1, dated May 21, 1996, a re-evaluation of the non-stabilized tanks.

N/A = Not applicable for Double-Shell Tanks

TABLE E-4. INVENTORY SUMMARY BY TANK FARM

October 31, 1996

SUPERNATANT LIQUID VOLUMES (Kgallons)													SOLIDS VOLUME			
TANK	TOTAL	AVAIL											SALT			
FARM	WASTE	SPACE	AGING	CC	CP	DC	DN	DN/PD	DN/PT	DSSE	NCPLX	TOTAL	DSS	SLUDGE	CAKE	TOTAL
EAST																
A	1537	0	0	0	0	0	0	0	0	9	0	9	0	556	972	1528
AN	5806	2174	0	1799	0	0	83	0	0	2337	0	4219	937	650	0	1587
AP	3641	5479	0	0	1097	46	1300	0	0	1043	0	3486	0	155	0	155
AW	3623	3217	0	0	0	0	990	311	0	1044	0	2345	0	1167	111	1278
AX	906	0	0	3	0	0	0	0	0	0	0	3	0	19	884	903
AY	1759	201	0	0	0	824	811	0	0	0	0	1635	0	124	0	124
AZ	1792	168	1662	0	0	0	0	0	0	0	0	1662	0	130	0	130
B	2057	0	0	0	0	0	0	0	0	0	15	15	0	1697	345	2042
BX	1493	0	0	0	0	0	0	0	0	0	21	21	0	1351	121	1472
BY	4680	0	0	0	0	0	0	0	0	0	0	0	0	833	3847	4680
C	1976	0	0	0	0	1	0	0	0	0	171	172	0	1804	0	1804
Total	29270	11239	1662	1802	1097	871	3184	311	0	4433	207	13567	937	6486	6280	15703
WEST																
S	5510	0	0	0	0	0	0	0	0	17	41	58	0	1166	4286	5452
SX	4419	0	0	0	0	1	0	0	0	0	62	63	0	1254	3102	4356
SY	2472	948	0	1455	0	0	0	0	539	0	0	1994	0	474	4	478
T	1938	0	0	0	0	0	0	0	0	0	31	31	0	1907	0	1907
TX	7009	0	0	0	0	0	0	0	0	0	5	5	0	241	6763	7004
TY	638	0	0	0	0	0	0	0	0	0	3	3	0	571	64	635
U	3550	0	0	0	0	0	0	0	0	31	137	168	0	638	2744	3382
Total	25536	948	0	1455	0	1	0	0	539	48	279	2322	0	6251	16963	23214
TOTAL	54806	12187	1662	3257	1097	872	3184	311	539	4481	486	15889	937	14737	23243	38917

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TABLE E-5. INVENTORY AND STATUS BY TANK - DOUBLE SHELL TANKS

October 31, 1996

TANK STATUS							LIQUID VOLUME				SOLIDS VOLUME			VOLUME DETERMINATION			PHOTOS/VIDEOS		SEE FOOTNOTE FOR THESE CHANGES
TANK	WAST MATL	TANK INTEGRITY	TANK USE	EQUIVA- LENT	TOTAL	AVAIL.	SUPER- NATANT LIQUID (Kgal)	DRAIN- ABLE INTER- STIT. (Kgal)	DRAIN- ABLE LIQUID REMAIN (Kgal)	PUMP- ABLE LIQUID REMAIN (Kgal)	DSS (Kgal)	SLUDGE	SALT CAKE	LIQUID VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE	LAST IN-TANK PHOTO	LAST IN-TANK VIDEO	
				WASTE	WASTE	SPACE													
				INCHES	(Kgal)	(Kgal)													
<u>AN TANK FARM STATUS</u>																			
AN-101	DN	SOUND	DRCVR	42.2	116	1024	83	0	83	83	0	33	0	FM	S	04/30/96	0/ 0/ 0		
AN-102	CC	SOUND	CWHT	392.4	1079	61	990	3	993	990	0	89	0	FM	S	08/22/89	0/ 0/ 0		
AN-103	DSS	SOUND	CWHT	347.6	966	184	19	0	19	19	937	0	0	FM	S	08/22/89	10/29/87		
AN-104	DSSF	SOUND	CWHT	383.6	1055	85	791	25	816	794	0	264	0	FM	S	08/22/89	08/19/88		
AN-105	DSSF	SOUND	CWHT	410.2	1128	12	1128	0	1128	1128	0	0	0	FM	S	10/22/84	01/26/88		
AN-106	DSSF	SOUND	CWHT	151.3	416	724	399	0	399	399	0	17	0	FM	S	08/22/89	0/ 0/ 0		
AN-107	CC	SOUND	CWHT	384.0	1056	84	809	23	832	810	0	247	0	FM	S	08/22/89	09/01/88		
7 DOUBLE-SHELL TANKS				TOTALS	5806	2174	4219	51	4270	4223	937	650	0						
<u>AP TANK FARM STATUS</u>																			
AP-101	DSSF	SOUND	DRCVR	379.3	1043	97	1043	0	1043	1043	0	0	0	FM	S	05/01/89	0/ 0/ 0		
AP-102	CP	SOUND	GRTFD	398.9	1097	43	1097	0	1097	1097	0	0	0	FM	S	07/11/89	0/ 0/ 0		
AP-103	DN	SOUND	DRCVR	8.4	23	1117	22	0	22	22	0	1	0	FM	S	05/31/96	0/ 0/ 0		
AP-104	DN	SOUND	GRTFD	9.5	26	1114	26	0	26	26	0	0	0	FM	S	10/13/88	0/ 0/ 0		
AP-105	DN	SOUND	CWHT	408.4	1123	17	969	11	980	969	0	154	0	FM	S	04/30/96	0/ 0/ 0	09/27/95	
AP-106	DN	SOUND	DRCVR	95.3	262	878	262	0	262	262	0	0	0	FM	S	10/13/88	0/ 0/ 0		
AP-107	DN	SOUND	DRCVR	7.6	21	1119	21	0	21	21	0	0	0	FM	S	10/13/88	0/ 0/ 0		
AP-108	DC	SOUND	DRCVR	16.7	46	1094	46	0	46	46	0	0	0	FM	S	10/13/88	0/ 0/ 0		
8 DOUBLE-SHELL TANKS				TOTALS	3641	5479	3486	11	3497	3486	0	155	0						
<u>AW TANK FARM STATUS</u>																			
AW-101	DSSF	SOUND	CWHT	410.2	1128	12	1044	2	1046	1044	0	84	0	FM	S	10/22/84	03/17/88		
AW-102	DN	SOUND	EVFD	36.0	99	1041	63	0	63	63	0	36	0	FM	S	04/30/96	02/02/83		
AW-103	DN/PD	SOUND	DRCVR	186.9	514	626	151	37	188	166	0	363	0	FM	S	02/01/89	0/ 0/ 0		
AW-104	DN	SOUND	DRCVR	407.6	1121	19	831	49	880	858	0	179	111	FM	S	03/05/87	02/02/83		
AW-105	DN/PD	SOUND	DRCVR	160.0	440	700	160	27	187	165	0	280	0	FM	S	05/31/96	0/ 0/ 0		
AW-106	DN	SOUND	SRCVR	116.7	321	819	96	20	116	96	0	225	0	FM	S	04/30/96	02/02/83		
6 DOUBLE-SHELL TANKS				TOTALS	3623	3217	2345	135	2480	2392	0	1167	111						

TABLE E-5. INVENTORY AND STATUS BY TANK - DOUBLE SHELL TANKS

October 31, 1996

TANK STATUS							LIQUID VOLUME				SOLIDS VOLUME			VOLUME DETERMINATION			PHOTOS/VIDEOS		SEE FOOTNOTE FOR THESE CHANGES
TANK	WAST MATL	TANK INTEGRITY	TANK USE	EQUIVA- LENT	TOTAL	AVAIL.	SUPER- NATANT	DRAIN- ABLE	DRAIN- ABLE	PUMP- ABLE	DSS	SLUDGE	SALT CAKE	LIQUID VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE	LAST IN-TANK PHOTO	LAST IN-TANK VIDEO	
				WASTE	WASTE	SPACE	LIQUID	STIT.	REMAIN	REMAIN									
				INCHES	(Kgal)	(Kgal)	(Kgal)	(Kgal)	(Kgal)	(Kgal)									
<u>AN TANK FARM STATUS</u>																			
AY-101	DC	SOUND	DRCVR	333.8	918	62	824	4	828	824	0	94	0	FM	S	05/31/96	12/28/82		
AY-102	DN	SOUND	DRCVR	305.8	841	139	811	0	811	811	0	30	0	FM	S	05/31/96	04/28/81		
2 DOUBLE-SHELL TANKS				TOTALS	1759	201	1635	4	1639	1635	0	124	0						
<u>AP TANK FARM STATUS</u>																			
AZ-101	AGING	SOUND	CWHT	316.4	870	110	835	0	835	835	0	35	0	FM	S	09/30/90	08/18/83		
AZ-102	AGING	SOUND	DRCVR	335.3	922	58	827	4	831	827	0	95	0	FM	S	06/04/92	10/24/84		
2 DOUBLE-SHELL TANKS				TOTALS	1792	168	1662	4	1666	1662	0	130	0						
<u>AW TANK FARM STATUS</u>																			
SY-101	CC	SOUND	CWHT	405.1	1114	26	1073	0	1073	1073	0	41	0	FM	S	05/31/96	04/12/89		
SY-102	DN/PT	SOUND	DRCVR	221.8	610	530	539	0	539	539	0	71	0	FM	S	05/12/87	04/29/81		
SY-103	CC	SOUND	CWHT	272.0	748	392	382	0	382	382	0	362	4	FM	S	10/22/84	10/01/85		
3 DOUBLE-SHELL TANKS				TOTALS	2472	948	1994	0	1994	1994	0	474	4						
GRAND TOTAL					19093	12187	15341	205	15546	15392	937	2700	115						

Note: +/- 1 Kgal differences are the result of computer rounding

Tank Farms	Available Space Calculations Used in This Document (Most Conservative)		IOSR WHC-SD-WM-OSR-16 (AN, AP, AW, SY) WHC-T-151-00009 (Aging Waste)	
	AN, AP, AW, SY	1,140,000 gal (414.5 in.)	1,144,000 gal (416 in.)(AN, AP, SY)	1,127,500 (410 in.)(AW-Farm)
AY, AZ (Aging Waste)		980,000 gal (356.4 in.)	1,000,000 gal (363.6 in.)(AY, AZ)	

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TABLE E-6. INVENTORY AND STATUS BY TANK - SINGLE-SHELL TANKS

October 31, 1996

TANK STATUS					LIQUID VOLUME						SOLIDS VOLUME		VOLUME DETERMINATION			PHOTOS/VIDEOS		SEE FOOTNOTES FOR THESE CHANGES		
TANK	WASTE MAT'L.	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER- NATE LIQUID (Kgal)	DRAIN- ABLE INTER- STIT. (Kgal)	PUMPED THIS MONTH (Kgal)	TOTAL PUMPED (Kgal)	DRAIN- ABLE LIQUID REMAIN (Kgal)	PUMP- ABLE LIQUID REMAIN (Kgal)	SLUDGE (Kgal)	CAKE (Kgal)	LIQUIDS VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE	LAST IN-TANK PHOTO	LAST IN-TANK VIDEO			
A TANK FARM STATUS																				
A-101	DSSF	SOUND	/PI	953	0	413	0.0	0.0	413	441	3	950	P	F	11/21/80	08/21/85				
A-102	DSSF	SOUND	IS/PI	41	4	2	0.0	39.5	6	0	15	22	P	FP	07/27/89	07/20/89				
A-103	DSSF	ASMD LKR	IS/IP	371	5	15	0.0	111.0	20	0	366	0	-	FP	08/03/88	12/28/88				
A-104	NCPLX	ASMD LKR	IS/IP	28	0	0	0.0	0.0	0	0	28	0	M	PS	01/27/78	06/25/86				
A-105	NCPLX	ASMD LKR	IS/IP	19	0	4	0.0	0.0	4	0	19	0	P	MP	08/23/79	08/20/86				
A-106	CP	SOUND	IS/IP	125	0	7	0.0	0.0	7	0	125	0	P	M	09/07/82	08/19/86				
6 SINGLE-SHELL TANKS				TOTALS	1537	9	441	0.0	150.5	450	441	556	972							
AX TANK FARM STATUS																				
AX-101	DSSF	SOUND	/PI	748	0	320	0.0	0.0	320	338	3	745	P	F	05/06/82	08/18/87				
AX-102	CC	ASMD LKR	IS/IP	39	3	14	0.0	13.0	17	3	7	29	F	S	09/06/88	06/05/89				
AX-103	CC	SOUND	IS/IP	112	0	36	0.0	0.0	36	3	2	110	F	S	08/19/87	08/13/87				
AX-104	NCPLX	ASMD LKR	IS/IP	7	0	0	0.0	0.0	0	0	7	0	P	M	04/28/82	08/18/87				
4 SINGLE-SHELL TANKS				TOTALS:	906	3	370	0.0	13.0	373	344	19	884							
B TANK FARM STATUS																				
B-101	NCPLX	ASMD LKR	IS/IP	113	0	6	0.0	0.0	6	0	113	0	P	F	04/28/82	05/19/83				
B-102	NCPLX	SOUND	IS/IP	32	4	0	0.0	0.0	4	0	18	10	P	F	08/22/85	08/22/85				
B-103	NCPLX	ASMD LKR	IS/IP	59	0	0	0.0	0.0	0	0	59	0	F	F	02/28/85	10/13/88				
B-104	NCPLX	SOUND	IS/IP	371	1	46	0.0	0.0	47	40	301	69	M	M	06/30/85	10/13/88				
B-105	NCPLX	ASMD LKR	IS/IP	306	0	23	0.0	0.0	23	0	40	266	P	MP	12/27/84	05/19/88				
B-106	NCPLX	SOUND	IS/IP	117	1	6	0.0	0.0	7	0	116	0	F	F	03/31/85	02/28/85				
B-107	NCPLX	ASMD LKR	IS/IP	165	1	12	0.0	0.0	13	7	164	0	M	M	03/31/85	02/28/85				
B-108	NCPLX	SOUND	IS/IP	94	0	4	0.0	0.0	4	0	94	0	F	F	05/31/85	05/10/85				
B-109	NCPLX	SOUND	IS/IP	127	0	8	0.0	0.0	8	0	127	0	M	M	04/08/85	04/02/85				
B-110	NCPLX	ASMD LKR	IS/IP	246	1	22	0.0	0.0	23	17	245	0	MP	MP	02/28/85	03/17/88				
B-111	NCPLX	ASMD LKR	IS/IP	237	1	21	0.0	0.0	22	16	236	0	F	F	06/28/85	06/26/85				
B-112	NCPLX	ASMD LKR	IS/IP	33	3	0	0.0	0.0	3	0	30	0	F	F	05/31/85	05/29/85				
B-201	NCPLX	ASMD LKR	IS/IP	29	1	3	0.0	0.0	4	0	28	0	M	M	04/28/82	11/12/86	06/23/95			
B-202	NCPLX	SOUND	IS/IP	27	0	3	0.0	0.0	3	0	27	0	P	M	05/31/85	05/29/85	06/15/95			
B-203	NCPLX	ASMD LKR	IS/IP	51	1	5	0.0	0.0	6	0	50	0	PM	PM	05/31/84	11/13/86				
B-204	NCPLX	ASMD LKR	IS/IP	50	1	5	0.0	0.0	6	0	49	0	P	M	05/31/84	10/22/87				
16 SINGLE-SHELL TANKS				TOTALS	2057	15	164	0.0	0.0	179	80	1697	345							

TABLE E-6. INVENTORY AND STATUS BY TANK - SINGLE-SHELL TANKS

October 31, 1996

TANK STATUS					LIQUID VOLUME						SOLIDS VOLUME		VOLUME DETERMINATION			PHOTOS/VIDEOS		SEE FOOTNOTES FOR THESE CHANGES
TANK	WASTE MAT'L.	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER- NATE (Kgal)	DRAIN- ABLE INTER- STIT. (Kgal)	PUMPED THIS MONTH (Kgal)	TOTAL PUMPED (Kgal)	DRAIN- ABLE LIQUID REMAIN (Kgal)	PUMP- ABLE LIQUID REMAIN (Kgal)	SLUDGE (Kgal)	SALT CAKE (Kgal)	LIQUIDS VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE	LAST IN-TANK PHOTO	LAST IN-TANK VIDEO	
BX TANK FARM STATUS																		
BX-101	NCPLX	ASMD LKR	IS/IP/CCS	43	1	0	0.0	0.0	1	0	42	0	P	M	04/28/82	11/24/88	11/10/94	
BX-102	NCPLX	ASMD LKR	IS/IP/CCS	96	0	4	0.0	0.0	4	0	96	0	P	M	04/28/82	09/18/85		
BX-103	NCPLX	SOUND	IS/IP/CCS	68	6	0	0.0	0.0	6	0	62	0	P	F	11/29/83	10/31/86	10/27/94	
BX-104	NCPLX	SOUND	IS/IP/CCS	99	3	30	0.0	17.4	33	27	96	0	F	F	09/22/89	09/21/89		
BX-105	NCPLX	SOUND	IS/IP/CCS	51	5	6	0.0	15.0	11	4	43	3	F	S	09/03/86	10/23/86		
BX-106	NCPLX	SOUND	IS/IP/CCS	38	0	0	0.0	14.0	0	0	38	0	MP	PS	08/01/95	05/19/88	07/17/95	
BX-107	NCPLX	SOUND	IS/IP/CCS	345	1	29	0.0	23.1	30	23	344	0	MP	P	09/18/90	09/11/90		
BX-108	NCPLX	ASMD LKR	IS/IP/CCS	26	0	1	0.0	0.0	1	0	26	0	M	PS	07/31/79	05/05/94		
BX-109	NCPLX	SOUND	IS/IP/CCS	193	0	13	0.0	8.2	13	8	193	0	FP	P	09/17/90	09/11/90		
BX-110	NCPLX	ASMD LKR	IS/IP/CCS	207	3	16	0.0	1.5	19	13	195	9	MP	M	10/31/94	07/15/94	10/13/94	
BX-111	NCPLX	ASMD LKR	IS/IP/CCS	162	1	1	0.0	116.9	3	1	52	109	M	M	04/06/95	05/19/94	02/28/95	
BX-112	NCPLX	SOUND	IS/IP/CCS	165	1	7	0.0	4.1	8	2	164	0	FP	P	09/17/90	09/11/90		
12 SINGLE-SHELL TANKS TOTALS:				1493	21	107	0.0	200.2	129	78	1351	121						
BY TANK FARM STATUS																		
BY-101	NCPLX	SOUND	IS/IP	387	0	5	0.0	35.8	5	0	109	278	P	M	05/30/84	09/19/89	(a)	
BY-102	NCPLX	SOUND	IS/PI	277	0	11	0.0	159.0	11	0	0	277	MP	M	05/01/95	09/11/87		04/11/95
BY-103	NCPLX	ASMD LKR	/PI	400	0	15	0.0	98.9	15	9	5	395	MP	M	04/03/90	09/07/89		
BY-104	NCPLX	SOUND	IS/IP	406	0	18	0.0	329.5	18	0	40	366	P	M	04/28/82	04/27/83		
BY-105	NCPLX	ASMD LKR	/PI	503	0	192	0.0	0.0	192	216	158	345	P	MP	04/28/82	07/01/86		
BY-106	NCPLX	ASMD LKR	/PI	642	0	200	0.0	63.7	200	163	95	547	P	MP	04/28/82	11/04/82		
BY-107	NCPLX	ASMD LKR	IS/IP	266	0	25	0.0	56.4	25	0	60	206	P	MP	04/28/82	10/15/86		
BY-108	NCPLX	ASMD LKR	IS/IP	228	0	9	0.0	27.5	9	0	154	74	MP	M	04/28/82	10/15/86		
BY-109	NCPLX	SOUND	/PI	423	0	19	3.5	154.0	19	0	83	340	F	PS	08/30/91	10/15/86		
BY-110	NCPLX	SOUND	IS/IP	398	0	9	0.0	213.3	9	0	103	295	M	S	09/10/79	07/26/84		
BY-111	NCPLX	SOUND	IS/IP	459	0	0	0.0	313.2	0	0	21	438	P	M	04/28/82	10/31/86		
BY-112	NCPLX	SOUND	IS/IP	291	0	8	0.0	116.4	8	0	5	286	P	M	04/28/82	04/14/88		
12 SINGLE-SHELL TANKS TOTALS:				4680	0	511	3.5	1567.7	511	388	833	3847						

TABLE E-6. INVENTORY AND STATUS BY TANK - SINGLE-SHELL TANKS

October 31, 1996

TANK STATUS					LIQUID VOLUME						SOLIDS VOLUME		VOLUME DETERMINATION					SEE FOOTNOTES
TANK	WASTE MAT'L.	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER- NATE (Kgal)	DRAIN- ABLE INTER- STIT. (Kgal)	PUMPED THIS MONTH (Kgal)	TOTAL PUMPED (Kgal)	DRAIN- ABLE LIQUID REMAIN (Kgal)	PUMP- ABLE LIQUID REMAIN (Kgal)	SLUDGE (Kgal)	SALT CAKE (Kgal)	LIQUIDS VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE	LAST IN-TANK PHOTO	LAST IN-TANK VIDEO	FOR THESE CHANGES
C TANK FARM STATUS																		
C-101	NCPLX	ASMD LKR	IS/IP	88	0	3	0.0	0.0	3	0	88	0	M	M	11/29/83	11/17/87		
C-102	DC	SOUND	IS/IP	316	0	30	0.0	46.7	30	17	316	0	F	FP	09/30/95	05/18/76	08/24/95	
C-103	NCPLX	SOUND	/PI	195	133	0	0.0	0.0	133	133	62	0	F	S	10/20/90	07/28/87		
C-104	CC	SOUND	IS/IP	295	0	11	0.0	0.0	11	5	295	0	FP	P	09/22/89	07/25/90		
C-105	NCPLX	SOUND	IS/PI	134	2	30	0.0	0.0	32	9	132	0	F	S	10/31/95	08/05/94	08/30/95	
C-106	NCPLX	SOUND	/PI	229	32	16	0.0	0.0	48	52	197	0	F	PS	04/28/82	08/05/94	08/08/94	
C-107	DC	SOUND	IS/IP	237	0	24	0.0	40.8	24	15	237	0	F	S	09/30/95	00/00/00		
C-108	NCPLX	SOUND	IS/IP	66	0	0	0.0	0.0	0	0	66	0	M	S	02/24/84	12/05/74	11/17/94	
C-109	NCPLX	SOUND	IS/IP	66	4	0	0.0	0.0	4	0	62	0	M	PS	11/29/83	01/30/76		
C-110	DC	ASMD LKR	IS/IP	178	1	28	0.0	15.5	29	15	177	0	F	FMP	06/14/95	08/12/86	05/23/95	
C-111	NCPLX	ASMD LKR	IS/IP	57	0	0	0.0	0.0	0	0	57	0	M	S	04/28/82	02/25/70	02/02/95	
C-112	NCPLX	SOUND	IS/IP	104	0	32	0.0	0.0	32	26	104	0	M	PS	09/18/90	09/18/90		
C-201	NCPLX	ASMD LKR	IS/IP	2	0	0	0.0	0.0	0	0	2	0	P	MP	03/31/82	12/02/86		
C-202	EMPTY	ASMD LKR	IS/IP	1	0	0	0.0	0.0	0	0	1	0	P	M	01/19/79	12/09/86		
C-203	NCPLX	ASMD LKR	IS/IP	5	0	0	0.0	0.0	0	0	5	0	P	MP	04/28/82	12/09/86		
C-204	NCPLX	ASMD LKR	IS/IP	3	0	0	0.0	0.0	0	0	3	0	P	MP	04/28/82	12/09/86		
16 SINGLE-SHELL TANKS				TOTALS:	1976	172	174	0.0	103.0	346	272	1804	0					
S TANK FARM STATUS																		
S-101	NCPLX	SOUND	/PI	427	12	84	0.0	0.0	96	127	244	171	F	PS	09/16/80	03/18/88		
S-102	DSSF	SOUND	/PI	549	0	230	0.0	0.0	230	239	4	545	P	FP	04/28/82	03/18/88		
S-103	DSSF	SOUND	/PI	248	17	85	0.0	0.0	102	97	10	221	M	S	11/20/80	06/01/89		
S-104	NCPLX	ASMD LKR	IS/IP	294	1	28	0.0	0.0	29	23	293	0	M	M	12/20/84	12/12/84		
S-105	NCPLX	SOUND	IS/IP	456	0	35	0.0	114.3	35	13	2	454	MP	S	09/26/88	04/12/89		
S-106	NCPLX	SOUND	/PI	479	4	186	0.0	97.0	190	168	28	447	P	FP	12/31/93	03/17/89	09/12/94	
S-107	NCPLX	SOUND	/PI	376	14	45	0.0	0.0	59	88	293	69	F	PS	09/25/80	03/12/87		
S-108	NCPLX	SOUND	/PI	604	0	2	0.0	199.8	2	0	4	600	P	MP	04/28/82	03/12/87		(b)
S-109	NCPLX	SOUND	/PI	568	0	141	0.0	111.0	141	119	13	555	F	PS	09/30/75	08/24/84		
S-110	NCPLX	SOUND	/PI	390	0	27	0.0	203.1	27	18	131	259	F	PS	05/14/92	03/12/87		(c)
S-111	NCPLX	SOUND	/PI	596	10	195	0.0	3.3	205	134	139	447	P	FP	04/28/82	08/10/89		
S-112	NCPLX	SOUND	/PI	523	0	110	0.0	125.1	110	107	5	518	P	FP	12/31/93	03/24/87		
12 SINGLE-SHELL TANKS				TOTALS:	5510	58	1168	0.0	853.6	1226	1133	1166	4286					

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TABLE E-6. INVENTORY AND STATUS BY TANK - SINGLE-SHELL TANKS
October 31, 1996

TANK STATUS					LIQUID VOLUME						SOLIDS VOLUME		VOLUME DETERMINATION					SEE FOOTNOTES FOR THESE CHANGES
TANK	WASTE MAT'L.	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER- NATE (Kgal)	DRAIN- ABLE INTER- STIT. (Kgal)	PUMPED THIS MONTH (Kgal)	TOTAL PUMPED (Kgal)	DRAIN- ABLE LIQUID REMAIN (Kgal)	PUMP- ABLE LIQUID REMAIN (Kgal)	SLUDGE (Kgal)	SALT CAKE (Kgal)	LIQUIDS VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE	LAST IN-TANK PHOTO	LAST IN-TANK VIDEO	
SX TANK FARM STATUS																		
SX-101	DC	SOUND	/PI	456	1	145	0.0	0.0	146	174	112	343	P	FP	04/28/82	03/10/89		
SX-102	DSSF	SOUND	/PI	543	0	183	0.0	0.0	183	216	117	426	P	M	04/28/82	01/07/88		
SX-103	NCPLX	SOUND	/PI	652	1	232	0.0	0.0	233	272	115	536	F	S	07/15/91	12/17/87		
SX-104	DSSF	ASMD LKR	/PI	614	0	201	0.0	113.2	201	195	136	478	F	S	07/07/89	09/08/88		
SX-105	DSSF	SOUND	/PI	683	0	261	0.0	0.0	261	299	73	610	P	F	04/28/82	06/15/88		
SX-106	NCPLX	SOUND	/PI	538	61	194	0.0	0.0	255	264	12	465	F	PS	10/28/80	06/01/89		
SX-107	NCPLX	ASMD LKR	IS/IP	104	0	5	0.0	0.0	5	0	104	0	P	M	04/28/82	03/06/87		
SX-108	NCPLX	ASMD LKR	IS/IP	87	0	5	0.0	0.0	5	0	87	0	P	M	12/31/93	03/06/87		
SX-109	NCPLX	ASMD LKR	IS/IP	244	0	48	0.0	0.0	48	25	0	244	P	M	01/10/96	05/21/86		
SX-110	NCPLX	ASMD LKR	IS/IP	62	0	0	0.0	0.0	0	0	62	0	M	PS	10/06/76	02/20/87		
SX-111	NCPLX	ASMD LKR	IS/IP	125	0	7	0.0	0.0	7	0	125	0	M	PS	05/31/74	06/09/94		
SX-112	NCPLX	ASMD LKR	IS/IP	92	0	3	0.0	0.0	3	0	92	0	P	M	04/28/82	03/10/87		
SX-113	NCPLX	ASMD LKR	IS/IP	26	0	0	0.0	0.0	0	0	26	0	P	M	04/28/82	03/18/88		
SX-114	NCPLX	ASMD LKR	IS/IP	181	0	14	0.0	0.0	14	0	181	0	P	M	04/28/82	02/26/87		
SX-115	NCPLX	ASMD LKR	IS/IP	12	0	0	0.0	0.0	0	0	12	0	P	M	04/28/82	03/31/88		
15 SINGLE-SHELL TANKS TOTALS:				4419	63	1298	0	113	1361	1445	1254	3102						
T TANK FARM STATUS																		
T-101	NCPLX	ASMD LKR	IS/PI	102	1	16	0.0	25.3	17	0	101	0	F	S	04/14/93	04/07/93		
T-102	NCPLX	SOUND	IS/IP	32	13	0	0.0	0.0	13	13	19	0	P	FP	08/31/84	06/28/89		
T-103	NCPLX	ASMD LKR	IS/IP	27	4	0	0.0	0.0	4	0	23	0	F	FP	11/29/83	07/03/84		
T-104	NCPLX	SOUND	/PI	368	0	43	5.2	89.0	43	40	368	0	P	MP	10/31/96	06/29/89	(d)	
T-105	NCPLX	SOUND	IS/IP	98	0	23	0.0	0.0	23	17	98	0	P	F	05/29/87	05/14/87		
T-106	NCPLX	ASMD LKR	IS/IP	21	2	0	0.0	0.0	2	0	19	0	P	FP	04/28/82	06/29/89		
T-107	NCPLX	ASMD LKR	IS/PI	173	0	22	0.0	11.0	22	12	173	0	P	FP	05/31/96	07/12/84	05/09/96	
T-108	NCPLX	ASMD LKR	IS/IP	44	0	0	0.0	0.0	0	0	44	0	P	M	04/28/82	07/17/84		

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TABLE E-6. INVENTORY AND STATUS BY TANK - SINGLE-SHELL TANKS

October 31, 1996

TANK STATUS					LIQUID VOLUME						SOLIDS VOLUME		VOLUME DETERMINATION			LAST IN-TANK PHOTO	LAST IN-TANK VIDEO	SEE FOOTNOTES FOR THESE CHANGES
TANK	WASTE MAT'L	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER- NATE (Kgal)	DRAIN- ABLE INTER- STIT. (Kgal)	PUMPED THIS MONTH (Kgal)	TOTAL PUMPED (Kgal)	DRAIN- ABLE LIQUID REMAIN (Kgal)	PUMP- ABLE LIQUID REMAIN (Kgal)	SLUDGE (Kgal)	CAKE (Kgal)	LIQUIDS VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE			
T-109	NCPLX	ASMD LKR	IS/IP	58	0	0	0.0	0.0	0	0	58	0	M	M	12/30/84	02/25/93		
T-110	NCPLX	SOUND	/PI	379	3	39	0.0	0.0	42	60	376	0	P	FP	04/28/82	07/12/84		
T-111	NCPLX	ASMD LKR	IS/PI	446	0	34	0.0	9.6	34	29	446	0	P	FP	04/18/94	04/13/94		
T-112	NCPLX	SOUND	IS/IP	67	7	0	0.0	0.0	7	7	60	0	P	FP	04/28/82	08/01/84		
T-201	NCPLX	SOUND	IS/IP	29	1	3	0.0	0.0	4	0	28	0	M	PS	05/31/78	04/15/86		
T-202	NCPLX	SOUND	IS/IP	21	0	2	0.0	0.0	2	0	21	0	FP	P	07/12/81	07/06/89		
T-203	NCPLX	SOUND	IS/IP	35	0	4	0.0	0.0	4	0	35	0	M	PS	01/31/78	08/03/89		
T-204	NCPLX	SOUND	IS/IP	38	0	4	0.0	0.0	4	0	38	0	FP	P	07/22/81	08/03/89		
16 SINGLE-SHELL TANKS TOTALS:				1938	31	190	5.2	134.9	221	178	1907	0						
TX TANK FARM STATUS																		
TX-101	NCPLX	SOUND	IS/IP/CCS	87	3	2	0.0	0.0	5	0	84	0	F	P	02/02/84	10/24/85		
TX-102	NCPLX	SOUND	IS/IP/CCS	217	0	22	0.0	94.4	22	0	0	217	M	S	08/31/84	10/31/85		
TX-103	NCPLX	SOUND	IS/IP/CCS	157	0	15	0.0	68.3	15	0	157	0	F	S	08/14/80	10/31/85		
TX-104	NCPLX	SOUND	IS/IP/CCS	65	1	14	0.0	3.6	15	0	0	64	F	FP	04/06/84	10/16/84		
TX-105	NCPLX	ASMD LKR	IS/IP/CCS	609	0	20	0.0	121.5	20	0	0	609	M	PS	08/22/77	10/24/89		
TX-106	NCPLX	SOUND	IS/IP/CCS	453	0	10	0.0	134.6	10	0	0	453	M	S	08/29/77	10/31/85		
TX-107	NCPLX	ASMD LKR	IS/IP/CCS	36	1	1	0.0	0.0	2	0	0	35	FP	FP	01/20/84	10/31/85		
TX-108	NCPLX	SOUND	IS/IP/CCS	134	0	0	0.0	13.7	0	0	0	134	P	FP	05/30/83	09/12/89		
TX-109	NCPLX	SOUND	IS/IP/CCS	384	0	10	0.0	72.3	10	0	0	384	F	PS	05/30/83	10/24/89		
TX-110	NCPLX	ASMD LKR	IS/IP/CCS	462	0	15	0.0	115.1	15	0	0	462	M	PS	05/30/83	10/24/89		
TX-111	NCPLX	SOUND	IS/IP/CCS	370	0	9	0.0	98.4	9	0	0	370	M	PS	07/26/77	09/12/89		
TX-112	NCPLX	SOUND	IS/IP/CCS	649	0	24	0.0	94.0	24	0	0	649	P	PS	05/30/83	11/19/87		
TX-113	NCPLX	ASMD LKR	IS/IP/CCS	607	0	16	0.0	19.2	16	0	0	607	M	PS	05/30/83	04/11/83		
TX-114	NCPLX	ASMD LKR	IS/IP/CCS	535	0	15	0.0	104.3	15	0	0	535	M	PS	05/30/83	04/11/83		
TX-115	NCPLX	ASMD LKR	IS/IP/CCS	640	0	19	0.0	99.1	19	0	0	640	M	S	03/25/83	06/15/88		
TX-116	NCPLX	ASMD LKR	IS/IP/CCS	631	0	23	0.0	23.8	23	0	0	631	M	PS	03/31/72	10/17/89		
TX-117	NCPLX	ASMD LKR	IS/IP/CCS	626	0	8	0.0	54.3	8	0	0	626	M	PS	12/31/71	04/11/83		
TX-118	NCPLX	SOUND	IS/IP/CCS	347	0	27	0.0	89.1	27	0	0	347	F	S	11/17/80	12/19/79		
18 SINGLE-SHELL TANKS TOTALS:				7009	5	250	0.0	1205.7	255	0	241	6763						

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TABLE E-6. INVENTORY AND STATUS BY TANK - SINGLE-SHELL TANKS

October 31, 1996

TANK STATUS					LIQUID VOLUME						SOLIDS VOLUM		VOLUME DETERMINATION			PHOTOS/VIDEOS		SEE FOOTNOTES FOR THESE CHANGES
TANK	WASTE MAT'L.	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER- NATE LIQUID (Kgal)	DRAIN- ABLE INTER- STIT. (Kgal)	PUMPED THIS MONTH (Kgal)	TOTAL PUMPED (Kgal)	DRAIN- ABLE LIQUID REMAIN (Kgal)	PUMP- ABLE LIQUID REMAIN (Kgal)	SLUDGE (Kgal)	CAKE (Kgal)	LIQUIDS VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE	LAST IN-TANK PHOTO	LAST IN-TANK VIDEO	
TY TANK FARM STATUS																		
TY-101	NCPLX	ASMD LKR	IS/IP/CCS	118	0	0	0.0	8.2	0	0	118	0	P	F	04/28/82	08/22/89		
TY-102	NCPLX	SOUND	IS/IP/CCS	64	0	14	0.0	6.6	14	0	0	64	P	FP	06/28/82	07/07/87		
TY-103	NCPLX	ASMD LKR	IS/IP/CCS	162	0	5	0.0	11.5	5	0	162	0	P	FP	07/09/82	08/22/89		
TY-104	NCPLX	ASMD LKR	IS/IP/CCS	46	3	12	0.0	0.0	15	0	43	0	P	FP	06/27/90	11/03/87		
TY-105	NCPLX	ASMD LKR	IS/IP/CCS	231	0	0	0.0	3.6	0	0	231	0	P	M	04/28/82	09/07/89		
TY-106	NCPLX	ASMD LKR	IS/IP/CCS	17	0	0	0.0	0.0	0	0	17	0	P	M	04/28/82	08/22/89		
6 SINGLE-SHELL TANKS TOTALS:				638	3	31	0.0	29.9	34	0	571	64						
U TANK FARM STATUS																		
U-101	NCPLX	ASMD LKR	IS/IP	25	3	0	0.0	0.0	3	0	22	0	P	MP	04/28/82	06/19/79		
U-102	NCPLX	SOUND	/PI	374	18	126	0.0	0.0	144	160	43	313	P	MP	06/30/96	06/08/89		
U-103	NCPLX	SOUND	/PI	468	13	176	0.0	0.0	189	205	32	423	P	FP	06/30/96	09/13/88		
U-104	NCPLX	ASMD LKR	IS/IP	122	0	7	0.0	0.0	7	0	122	0	P	MP	04/28/82	08/10/89		
U-105	NCPLX	SOUND	/PI	418	37	142	0.0	0.0	179	192	32	349	FM	PS	06/30/96	07/07/88		
U-106	NCPLX	SOUND	/PI	226	15	68	0.0	0.0	83	85	26	185	F	PS	06/30/96	07/07/88		
U-107	DSSF	SOUND	/PI	406	31	147	0.0	0.0	178	183	15	360	F	S	06/30/96	10/27/88		
U-108	NCPLX	SOUND	/PI	468	24	172	0.0	0.0	196	209	29	415	F	S	06/30/96	09/12/84		
U-109	NCPLX	SOUND	/PI	463	19	163	0.0	0.0	182	205	48	396	F	F	06/30/96	07/07/88		
U-110	NCPLX	ASMD LKR	IS/PI	186	0	15	0.0	0.0	15	9	186	0	M	M	12/30/84	12/11/84		
U-111	DSSF	SOUND	/PI	329	0	122	0.0	0.0	122	129	26	303	PS	FPS	06/30/96	06/23/88		
U-112	NCPLX	ASMD LKR	IS/IP	49	4	0	0.0	0.0	4	0	45	0	P	MP	02/10/84	08/03/89		
U-201	NCPLX	SOUND	IS/IP	5	1	0	0.0	0.0	1	0	4	0	M	S	08/15/79	08/08/89		
U-202	NCPLX	SOUND	IS/IP	5	1	0	0.0	0.0	1	0	4	0	M	S	08/15/79	08/08/89		
U-203	NCPLX	SOUND	IS/IP	3	1	0	0.0	0.0	1	0	2	0	M	S	08/15/79	06/13/89		
U-204	NCPLX	SOUND	IS/IP	3	1	0	0.0	0.0	1	0	2	0	M	S	08/15/79	06/13/89		
16 SINGLE-SHELL TANKS TOTALS:				3550	168	1138	0.0	0.0	1306	1377	638	2744						
GRAND TOTAL				35713	548	5842	8.7	4371.7	6391	5736	12037	23128						

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TABLE E-6. INVENTORY AND STATUS BY TANK - SINGLE-SHELL TANKS

October 31, 1996

FOOTNOTES:

Total Waste is calculated as the sum of Sludge and Saltcake plus Supernate.

The category "Interim Isolated" (II) was changed to "Intrusion Prevention" (IP) in June 1993. See section C. "Tank and Equipment Code and Status Definitions."

Stabilization information from WHC-SD-RE-TI-178 SST STABILIZATION RECORD, latest revision, or SST Stabilization or Cognizant Engineer

(a) BY-109 - Following information from Cognizant Engineer:

Saltwell pumping was resumed on September 11, 1996.

Total waste: 423 Kgal (No change)

Supernate: 0 Kgal (No change)

Drainable Interstitial Liquid: 19.1 Kgal

Pumped this Month: 3.5 Kgal

Total Pumped: 154 Kgal

Drainable Liquid Remaining: 19.1 Kgal

Pumpable Liquid Remaining: 0 Kgal

Sludge: 83 Kgal (No change)

Saltcake: 340 Kgal (No change)

Note: Yield of liquid from this tank has exceeded original saltwell pumping estimates. Data generated by the current pumping campaign will be used to revise porosity estimates, and therefore pumpable liquid remaining and waste volume estimates.

(b) S-108 - Following information from Cognizant Engineer:

Total waste: 604 Kgal (No change)

Supernate: 0 Kgal (No change)

Drainable Interstitial Liquid: 2.2 Kgal

Pumped this Month: 0 Kgal

Total Pumped: 199.8 Kgal

Drainable Liquid Remaining: 2.2 Kgal

Pumpable Liquid Remaining: 0 Kgal

Sludge: 4 Kgal (No change)

Saltcake: 600 Kgal (No change)

Note: Pumping is complete and the interim stabilization evaluation is in progress. The flow rate determination showed that the tank in-flow rate was $< .05$ gal/min.

By September 27, the saltwell level had stabilized at 16.7 inches. Porosity is estimated at 16.9% and the amount of drainable liquid remaining is estimated at 2180 gallons.

An in-tank video is needed before the tank can be declared interim stabilized, but is being delayed until flammable gas issues affecting the video can be resolved.

TABLE E-6. INVENTORY AND STATUS BY TANK - SINGLE-SHELL TANKS

October 31, 1996

(c) S-110 - Following information from Cognizant Engineer:

Pumping resumed June 3, 1996, and was interrupted July 16 (see below).

Total waste: 390 Kgal (No change)

Supernate: 0 Kgal (No change)

Drainable Interstitial Liquid: 26.6 Kgal

Pumped this Month: 0 Kgal

Total Pumped: 203.1 Kgal

Drainable Liquid Remaining: 26.6 Kgal

Pumpable Liquid Remaining: 17.9 Kgal

Sludge: 131 Kgal (No change)

Saltcake: 259 Kgal (No change)

Note: Pumping was interrupted July 16. Appears to be an impeller/shaft disconnect. Saltwell level was monitored until it stabilized in late September at 92 inches.

Porosity is estimated at 10.5% and the amount of drainable fluid is estimated at 26.6 Kgal (including the capillary). It would cost about \$70,000 and 640 mR to replace the pump with the bearing failure. An evaluation will be performed to declare the tank interim stabilized. The evaluation is being delayed due to flammable gas issues which must be resolved before an in-tank video can be made.

(d) T-104 - Following information from Cognizant Engineer:

Pumping started March 24, 1996, and the pump failed August 26. Pump was replaced and pumping restarted September 9.

Total waste: 368 Kgal

Supernate: 0 Kgal (No change)

Drainable Interstitial Liquid: 43.1 Kgal

Pumped this Month: 5.2 Kgal

Total Pumped: 89.0 Kgal

Drainable Liquid Remaining: 43.1 Kgal

Pumpable Liquid Remaining: 40.1 Kgal

Sludge: 368 Kgal

Saltcake: 0 Kgal (No change)

Note: Total waste based on ENRAF level. Drainable Interstitial estimates based on 20% porosity. 4 Kgal drop in overall waste volume due to pumping.

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APPENDIX F
PERFORMANCE SUMMARY

TABLE F-1. PERFORMANCE SUMMARY (Sheet 1 of 2)

WASTE VOLUMES (Kgallons)

October 31, 1996

INCREASES/DECREASES IN WASTE VOLUMES
STORED IN DOUBLE-SHELL TANKS

<u>SOURCE</u>	<u>THIS MONTH</u>	<u>FY1997 TO DATE</u>
B PLANT	14	14
PUREX TOTAL (1)	0	0
PPF (1)	0	0
T PLANT (1)	0	0
S PLANT (1)	1	1
300 AREAS (1)	0	0
400 AREAS (1)	0	0
SULFATE WASTE -100 N (2)	0	0
TRAINING/X-SITE (9)	0	0
TANK FARMS (6)	6	6
SALTWELL LIQUID (8)	17	17
OTHER GAINS	36	36
Slurry increase (3)	1	
Condensate	35	
Instrument change (7)	0	
Unknown (5)	0	
OTHER LOSSES	-29	-29
Slurry decrease (3)	-3	
Evaporation (4)	-19	
Instrument change (7)	0	
Unknown (5)	-7	
EVAPORATED	0	0
GROUTED	0	0
TOTAL	45	45

CUMULATIVE EVAPORATION - 1950 TO PRESENT
WASTE VOLUME REDUCTION

<u>FACILITY</u>	
242-B EVAPORATOR (10)	7172
242-T EVAPORATOR (1950's) (10)	9181
IN-TANK SOLIDIFICATION UNIT 1 (10)	11876
IN-TANK SOLIDIFICATION UNIT 2 (10)	15295
IN-TANK SOLID. UNIT 1 & 2 (10)	7965
(after conversion of Unit 1 to a cooler for Unit 2)	
242-T (Modified) (10)	24471
242-S EVAPORATOR (10)	41983
242-A EVAPORATOR (11)	73689
B PLANT (Cell 23) (10)	1185
REDOX (10)	12393
TOTAL	205210
<p>Note: 242-A Evaporator was restarted April 15, 1994, after having been shut down since April 1989.</p>	
Total waste reduction since restart:	8462

Footnotes: See Next Page

TABLE F-1. PERFORMANCE SUMMARY
(Sheet 2 of 2)

Footnotes:

INCREASES/DECREASES IN WASTE VOLUMES

- (1) Including flush
- (2) Sulfate waste is generated from ion exchange backflushing and sand filter clean out, resulting in sulfate waste.
- (3) Slurry increase/growth is caused by gas generation within the waste.
- (4) Aging waste tanks
- (5) Unknown waste gains or losses,
- (6) Includes Tank Farms miscellaneous flushes
- (7) Liquid level measurement instrument changes from the automatic FIC to manual tape (and vice versa) result in unusual gains or losses because the manual tape may rest on an uneven crust surface giving a different reading from that of the automatic FIC.
- (8) Results from pumping of single-shell tanks to double-shell tanks.
- (9) Tracks waste being sent to the double-shell tanks from the "Precampaign Training Run." Evaporator procedures require a training run at least once per year. This also includes pressure testing and flushing of cross-site transfer lines.

WASTE VOLUME REDUCTION

- (10) Currently inoperative.
- (11) Currently operative. The 242-A Evaporator-Crystallizer was started up March 1977, and shut down April 1989 because of regulatory issues, and remained shut down for subsequent upgrading. This evaporator operates under a vacuum, employing evaporative concentration with subsequent crystallization and precipitation of salt crystals (forming saltcake). The evaporator was restarted on April 15, 1994.

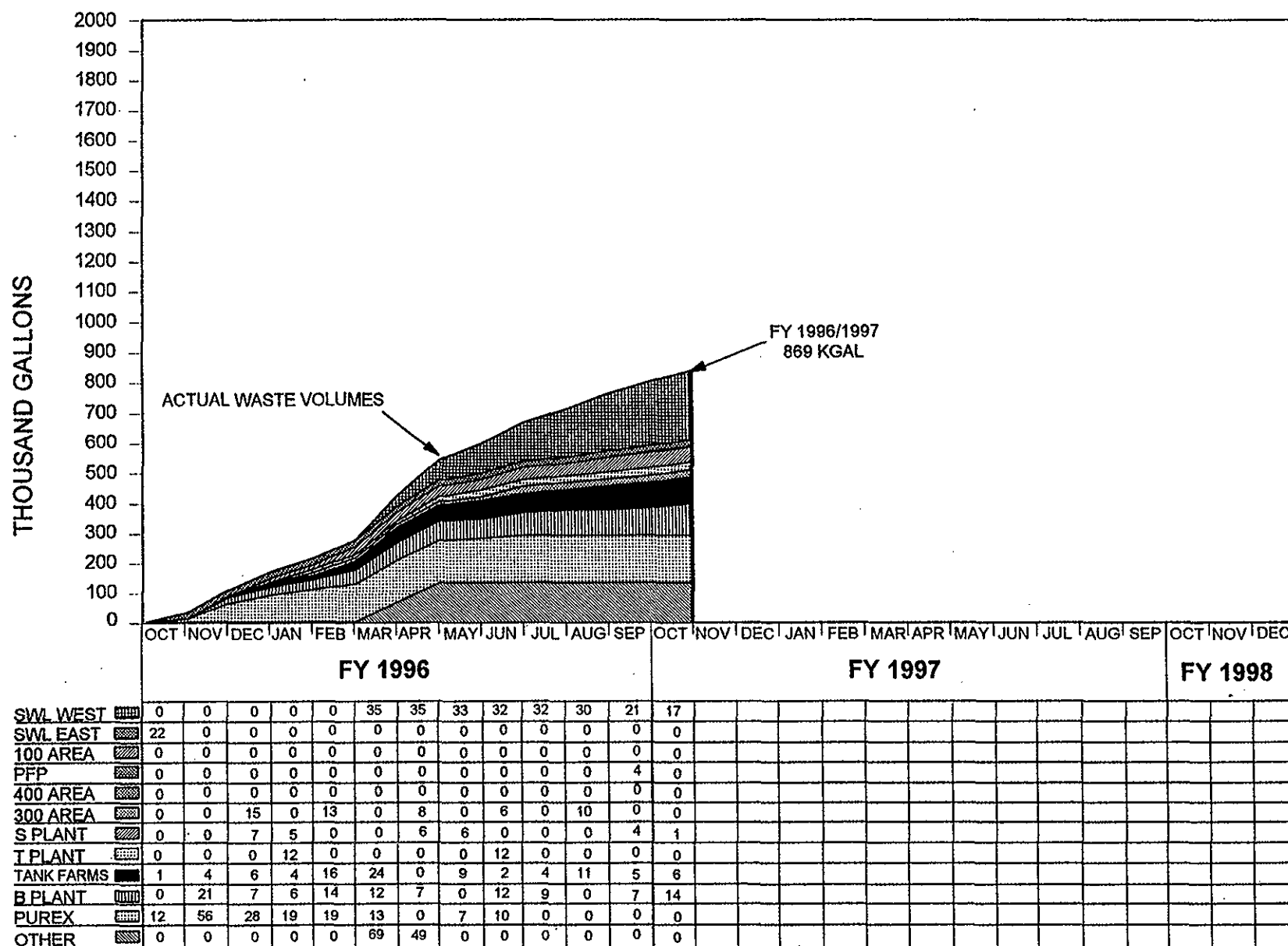
TABLE F-2. SUMMARY OF WASTE TRANSACTIONS IN THE DOUBLE-SHELL TANKS

- There was a net change of +45 Kgal in the DST system for October 1996.
- The total DST inventory as of October 31, 1996 was 19,093 Kgal.
- There was no Saltwell Liquid (SWL) transferred to the East Area DSTs in October.
- There was 17 Kgal of SWL pumped to DST 102-SY (West Area) in October, All 17 Kgal came from the 244-TX (DCRT) .
- The solids levels in Tanks 102-SY, 102-AW, 103-AW, 105-AW and 106-AW, were updated to the most current available data in October.
- ~ 5 Kgal of NaOH (Caustic) was added to Tanks 102-AY and 101-AZ on October 3rd.

OCTOBER 1996 DST WASTE RECEIPTS					
FACILITY GENERATIONS		OTHER GAINS ASSOCIATED WITH		OTHER LOSSES ASSOCIATED WITH	
B PLANT	14 Kgal (6AP)	SLURRY	+1 Kgal	SLURRY	-3 Kgal
TANK FARMS	6 Kgal (2AY, 1AZ)	CONDENSATE	+35 Kgal	CONDENSATE	-19 Kgal
SWL (WEST)	17 Kgal (2SY, 6AP)	INSTRUMENTATION	+0 Kgal	INSTRUMENTATION	-0 Kgal
222S LABS	1 Kgal (6AP)	UNKNOWN	+0 Kgal	UNKNOWN	-7 Kgal
TOTAL	38 Kgal	TOTAL	+36 Kgal	TOTAL	29 Kgal

	ACTUAL DST WASTE RECEIPTS	PROJECTED DST WASTE RECEIPTS	MISC. DST CHANGES (+/-)	WVR	NET DST CHANGE	TOTAL DST VOLUME
OCT96	38	51	+7	0	+45	19093
NOV96		42		0		
DEC96		64		0		
JAN97		61		0		
FEB97		148		-503		
MAR97		157		0		
APR97		170		0		
MAY97		194		0		
JUN97		184		0		
JUL97		286		-759		
AUG97		374		0		
SEP97		355		0		

NOTE: The WVR numbers in February and July 1997 are projected Waste Volume Reductions through the 242-A Evaporator.



NOTE: The "Other" Category is For Waste Generations From, Evaporator Training, Pressure Tests and Cross-Site Transfers

FIGURE F-1. COMPARISON OF WASTE VOLUME GENERATIONS FOR HANFORD FACILITIES
(ALL VOLUMES IN KGALS)

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APPENDIX G

**MISCELLANEOUS UNDERGROUND STORAGE TANKS
AND SPECIAL SURVEILLANCE FACILITIES**

**TABLE G-1. EAST AND WEST AREA MISCELLANEOUS UNDERGROUND STORAGE TANKS
AND SPECIAL SURVEILLANCE FACILITIES**

ACTIVE - still running transfers through the associated diversion boxes or pipeline encasements

October 31, 1996

<u>FACILITY</u>	<u>LOCATION</u>	<u>PURPOSE (receives waste from:)</u>	<u>VOLUME OF CONTENTS (Gallons)</u>	<u>MONITORED BY</u>	<u>REMARKS</u>
EAST AREA					
241-A-302-A	A Farm	A-151 DB	338	SACS/DIP TUBE	Pumped 7/1/96
241-ER-311	B Plant	ER-151, ER-152 DB	1999	SACS/CASS/FIC	Pumped 8/8/96
241-AX-152	AX Farm	AX-152 DB	872	SACS/MT	DIAL O/S, using MT, pumped 10/4/96
241-AZ-151	AZ Farm	AZ-152 DB, AZ Loop Seal	1837	SACS/CASS/FIC	Volume changes daily
241-AZ-154	AZ Farm	AZ-102 Htg coil steam condensate	0	SACS/CASS/MT	Automatic Pump
244-BX-TK/SMP	BX Complex	DCRT - Receivers from several farms	18145	SACS/MANUALLY	Using Manual Tape for tank
244-A-TK/SMP	A Complex	DCRT - Receives from several farms	3067	MCS	WTF
A-350	A Farm	Collects drainage	5026	SACS/MT	WTF, PUMPED 9/5 & 9/24/96
AR-204	AY Farm	RR Cars during transfer to rec. tanks	648	DIP TUBE	Alarms on CASS
A-417	A Farm	A-702 Process condensate	13520	SACS/DIP TUBE	WTF. pumped 10/28/96
CR-003-TK/SMP	C Farm	DCRT	3962	MT/ZIP CORD	Zip cord in sump O/S 3/11/96
WEST AREA					
241-TX-302-C	TX Farm	TX-154 DB	5638	SACS/CASS/ENRAF	
241-U-301-B	U Farm	U-151, U-152, U-153, U-252 DB	7947	SACS/CASS/ENRAF	Returned to service 12/30/93
241-UX-302-A	U Plant	UX-154 DB	7115	SACS/CASS/ENRAF	
241-S-304	S Farm	S-151 DB	9133	SACS/RS	10/91, replaced S-302-A, Manual FIC
244-S-TK/SMP	S Farm	DCRT - Receives from several farms	35985	SACS/MANUALLY	CWF
244-TX-TK/SMP	TX Farm	DCRT - Receives from several farms	7973	SACS/MANUALLY	MT
Vent Station Catch Tank		Cross Country Transfer Line	272	SACS/MANUALLY	MT

Total Active Facilities 18

Note: Readings may be taken manually or automatically by FIC (or ENRAF). All FIC/ENRAF are connected to CASS. All tanks on CASS (either auto or manual) are also on the SACS database. If automatic connections to CASS are broken, readings are taken manually. Manual readings include readings taken by manual tape, manual FIC, or manual readings of automatic FIC (if CASS is printing "0"). Readings may also be taken by zip cord, which are acceptable but less accurate.

LEGEND: DB - Diversion Box
DCRT - Double-Contained Receiver Tank
TK - Tank
SMP - Sump
FIC - Food Instrument Corporation measurement device
RS - Robert Shaw Instrument measurement device
MFIC - Manual FIC
MT - Manual Tape
CWF - Weight Factor/SpG = Corrected Weight Factor
CASS - Computer Automated Surveillance System
SACS - Surveillance Automated Control System
MCS - Monitor and Control System
O/S - Out of Service
ENRAF - Surface Level Measuring Device

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TABLE G-2. EAST AREA INACTIVE MISC. UNDERGROUND STORAGE TANKS AND SPECIAL SURV. FACILITIES

INACTIVE - no longer receiving waste transfers

October 31, 1996

<u>FACILITY</u>	<u>LOCATION</u>	<u>RECEIVED WASTE FROM:</u>	<u>VOLUME OF CONTENTS (Gallons)</u>	<u>MONITORED BY</u>	<u>REMARKS</u>
216-BY-201	BY Farm	TBP Waste Line	Unknown	NM	(216-BY)
241-A-302-B	A Farm	A-152 DB	5021	CASS/MT	Isolated 1985, Project B-138 Interim Stabilized 1990
241-AX-151	N of PUREX	PUREX	Unknown	NM	Isolated 1985
241-B-301-B	B Farm	B-151, B-152, B-153, B-252 DB	22250	NM	Isolated 1985 (1)
241-B-302-B	B Farm	B-154 DB	4930	NM	Isolated 1985 (1)
241-BX-302-A	BX Farm	BR-152, BX-153, BXR-152, BYR-152 DB	840	NM	Isolated 1985 (1)
241-BX-302-B	BX Farm	BX-154 DB	1040	NM	Isolated 1985 (1)
241-BX-302-C	BX Farm	BX-155 DB	870	NM	Isolated 1985 (1)
241-C-301-C	C Farm	C-151, C-152, C-153, C-252 DB	10470	NM	Isolated 1985 (1)
241-CX-70	Hot Semi-	Transfer lines	Unknown	NM	Isolated, Decommission Project,
241-CX-72	Works	Transfer lines	650	NM	See Dwg H-2-95-501, 2/5/87
241-ER-311A	SW B Plant	ER-151 DB	Unknown	NM	Isolated
244-AR VAULT	A Complex	Between farms & B-Plant	Unknown	NM	Not actively being used. Systems activated for final clean-out.
244-BXR-TK/SMP-001	BX Farm	Transfer lines	7200	NM	Interim Stabilization 1985 (1)
244-BXR-TK/SMP-002	BX Farm	Transfer lines	2180	NM	Interim Stabilization 1985 (1)
244-BXR-TK/SMP-003	BX Farm	Transfer lines	1810	NM	Interim Stabilization 1985 (1)
244-BXR-TK/SMP-011	BX Farm	Transfer lines	7100	NM	Interim Stabilization 1985 (1)
361-B-TANK	B Plant	Drainage from B-Plant	Unknown	NM	Interim Stabilization 1985 (1)

Total East Area inactive facilities 18

LEGEND: DB - Diversion Box
DCRT - Double-Contained Receiver Tank
MT - Manual Tape
CASS - Computer Automated Surveillance System
TK - Tank
SMP - Sump
R - Usually denotes replacement
NM - Not Monitored

(1) SOURCE: WASTE STORAGE TANK STATUS & LEAK DETECTION CRITERIA document

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TABLE G-3. WEST AREA INACTIVE MISC. UNDERGROUND STORAGE TANKS AND SPECIAL SURV. FACILITIES

INACTIVE - no longer receiving waste transfers

October 31, 1996

**VOLUME OF
CONTENTS MONITORED**

<u>FACILITY</u>	<u>LOCATION</u>	<u>RECEIVED WASTE FROM:</u>	<u>(Gallons)</u>	<u>BY</u>	<u>REMARKS</u>
216-TY-201	E. of TY Farm	Supernate from T-112	Unknown	NM	Isolated
231-W-151-001	N. of Z Plant	231-Z Floor drains	Unknown	NM	Inactive, last data 1974
231-W-151-002	N. of Z Plant	231-Z Floor drains	Unknown	NM	Inactive, last data 1974
240-S-302	S Farm	240-S-151 DB	1627	CASS/ENRAF	Assumed Leaker EPDA 85-04
241-S-302-A	S Farm	241-S-151 DB	9049	CASS/FIC *	Assumed Leaker TF-EFS-90-042
			* FIC in Intrusion mode		Partially filled with grout 2/91, determined still assumed leaker after leak test
241-S-302-B	S Farm	S Encasements	Unknown	NM	Isolated 1985 (1)
241-SX-302	SX Farm	SX-151 DB, 151 TB	Unknown	NM	Isolated 1987
241-SX-304	SX Farm	SX-152 Transfer Box, SX-151 DB	Unknown	NM	Isolated 1985 (1)
241-T-301	T Farm	DB T-151, -151, -153, -252	Unknown	NM	Isolated 1985 (241-T-301B)
241-TX-302	TX Farm	TX-153 DB	Unknown	NM	Isolated 1985 (1)
241-TX-302-X-B	TX Farm	TX Encasements	Unknown	NM	Isolated 1985 (1)
241-TX-302-B	TX Farm	TX-155 DB	1460	CASS/MT	New MT installed 7/16/93
241-TX-302B(R)	E. of TX Farm	TX-155 DB	Unknown	NM	Isolated
241-TY-302-A	TY Farm	TX-153 DB	Unknown	NM	Isolated 1985 (1)
241-TY-302-B	TY Farm	TY Encasements	Unknown	NM	Isolated 1985 (1)
241-Z-8	E. of Z Plant	Recuplex waste	Unknown	NM	Isolated, 1974, 1975
242-T-135	T Evaporator	T Evaporator	Unknown	NM	Isolated
242-TA-R1	T Evaporator	Z Plant waste	Unknown	NM	Isolated
243-S-TK-1	N. of S Farm	Pers. Decon. Facility	Unknown	NM	Isolated
244-U-TK/SMP	U Farm	DCRT - Receives from several farms	Unknown	NM	Not yet in use
244-TXR VAULT	TX Farm	Transfer lines	Unknown	NM	Interim Stabilized, MT removed 1984 (1)
244-TXR-TK/SMP-001	TX Farm	Transfer lines	Unknown	NM	Interim Stabilized, MT removed 1984 (1)
244-TXR-TK/SMP-002	TX Farm	Transfer lines	Unknown	NM	Interim Stabilized, MT removed 1984 (1)
244-TXR-TK/SMP-003	TX Farm	Transfer lines	Unknown	NM	Interim Stabilized, MT removed 1984 (1)
270-W	SE of U Plant	Condensate from U-221	Unknown	NM	Isolated 1970
361-T-TANK	T Plant	Drainage from T-Plant	Unknown	NM	Isolated 1985 (1)
361-U-TANK	U Plant	Drainage from U-Plant	Unknown	NM	Interim Stabilized, MT removed 1984 (1)

Total West Area inactive facilities 27

LEGEND: DB - Diversion Box, TB - Transfer Box
 DCRT - Double-Contained Receiver Tank
 TK - Tank
 SMP - Bump
 R - Usually denotes replacement
 FIC - Surface Level Monitoring Device
 MT - Manual Tape
 O/S - Out of Service
 CASS - Computer Automated Surveillance System
 NM - Not Monitored
 ENRAF - Surface Level Monitoring Device

(1) SOURCE: WASTE STORAGE TANK STATUS & LEAK DETECTION CRITERIA document

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APPENDIX H
LEAK VOLUME ESTIMATES

TABLE H-1. SINGLE-SHELL TANK LEAK VOLUME ESTIMATES (Sheet 1 of 2)

October 31, 1996

<u>Tank No.</u>	<u>Date Declared Confirmed or Assumed Leaker</u>	<u>Volume (Gallons)</u>	<u>Associated KiloCuries 137 cs</u>	<u>Interim Stabilized Date</u>	<u>Leak Estimate Updated</u>	<u>Reference</u>
241-A-103	1987	5500		06/88	1987	(j)
241-A-104	1975	500 to 2500	0.8 to 1.8 (q)	09/78	1983	(a) (q)
241-A-105	1963	10000 to 277000	85 to 760 (b)	07/79	1991	(b),(c)
241-AX-102	1988	3000		09/88	1989	(h)
241-AX-104	1977	--		08/81	1989	(g)
241-B-101	1974	--		03/81	1989	(g)
241-B-103	1978	--		02/85	1989	(g)
241-B-105	1978	--		12/84	1989	(g)
241-B-107	1980	8000		03/85	1986	(d),(f)
241-B-110	1981	10000		03/85	1986	(d)
241-B-111	1978	--		06/85	1989	(g)
241-B-112	1978	2000		05/85	1989	(g)
241-B-201	1980	1200		08/81	1984	(e),(f)
241-B-203	1983	300		06/84	1986	(d)
241-B-204	1984	400		06/84	1989	(g)
241-BX-101	1972	--		09/78	1989	(g)
241-BX-102	1971	70000	50 (l)	11/78	1986	(d)
241-BX-108	1974	2500	0.5 (l)	07/79	1986	(d)
241-BX-110	1976	--		08/85	1989	(g)
241-BX-111	1984	--		03/95	1993	(g),(r)
241-BY-103	1973	<5000		N/A	1983	(a)
241-BY-105	1984	--		N/A	1989	(g)
241-BY-106	1984	--		N/A	1989	(g)
241-BY-107	1984	15100		07/79	1989	(g)
241-BY-108	1972	<5000		02/85	1983	(a)
241-C-101	1980	20000		11/83	1986	(d)
241-C-110	1984	2000		05/95	1989	(g)
241-C-111	1968	5500		03/84	1989	(g)
241-C-201	1988	550		03/82	1987	(i)
241-C-202	1988	450		08/81	1987	(i)
241-C-203	1984	400		03/82	1986	(d)
241-C-204	1988	350		09/82	1987	(i)
241-S-104	1968	24000		12/84	1989	(g)
241-SX-104	1988	6000		N/A	1988	(k)
241-SX-107	1964	<5000		10/79	1983	(a)
241-SX-108	1962	2400 to 35000	17 to 140 (m) (q)	08/79	1991	(m) (q)
241-SX-109	1965	<10000	<40 (n)	05/81	1992	(n)
241-SX-110	1976	5500		08/79	1989	(g)
241-SX-111	1974	500 to 2000	0.6 to 2.4 (l) (q)	07/79	1986	(d) (q)
241-SX-112	1969	30000	40 (l)	07/79	1986	(d)
241-SX-113	1962	15000	8 (l)	11/78	1986	(d)
241-SX-114	1972	--		07/79	1989	(g)
241-SX-115	1965	50000	21 (o)	09/78	1992	(o)
241-T-101	1992	7500		04/93	1992	(p)
241-T-103	1974	<1000		11/83	1989	(g)
241-T-106	1973	115000	40 (l)	08/81	1986	(d)
241-T-107	1984	--		05/96	1989	(g)
241-T-108	1974	<1000		11/78	1980	(f)
241-T-109	1974	<1000		12/84	1989	(g)
241-T-111	1979, 1994	<1000		02/95	1994	(f)(t)
241-TX-105	1977	--		04/83	1989	(g)
241-TX-107	1984	2500		10/79	1986	(d)
241-TX-110	1977	--		04/83	1989	(g)
241-TX-113	1974	--		04/83	1989	(g)
241-TX-114	1974	--		04/83	1989	(g)
241-TX-115	1977	--		09/83	1989	(g)
241-TX-116	1977	--		04/83	1989	(g)
241-TX-117	1977	--		03/83	1989	(g)
241-TY-101	1973	<1000		04/83	1980	(f)
241-TY-103	1973	3000	0.7 (l)	02/83	1986	(d)
241-TY-104	1981	1400		11/83	1986	(d)
241-TY-105	1960	35000	4 (l)	02/83	1986	(d)
241-TY-106	1959	20000	2 (l)	11/78	1986	(d)
241-U-101	1959	30000	20 (l)	09/79	1986	(d)
241-U-104	1961	55000	0.09 (l)	10/78	1986	(d)
241-U-110	1975	5000 to 8100	0.05 (q)	12/84	1986	(d) (q)
241-U-112	1980	8500		09/79	1986	(d)
67 Tanks		<600,000 - 900,000				

N/A = not applicable (not yet interim stabilized)

Footnotes: See next page

TABLE H-1. SINGLE-SHELL TANK LEAK VOLUME ESTIMATES
(Sheet 2 of 2)

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- (t) WHC, 1994, Occurrence Report, "Apparent Liquid Level Decrease in Single Shell Underground Storage Tank 241-T-111; Declared an Assumed Re-Leaker," RL-WHC-TANKFARM-1994-0009, Westinghouse Hanford Company, Richland, Washington.

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APPENDIX I

INTERIM STABILIZATION STATUS
CONTROLLED, CLEAN, AND STABLE STATUS

TABLE I-1. SINGLE-SHELL TANKS INTERIM STABILIZATION STATUS (Sheet 1 of 2)

October 31, 1996

Tank Number	Tank Integrity	Interim Stabil. Date (1)	Stabil. Method	Tank Number	Tank Integrity	Interim Stabil. Date (1)	Stabil. Method	Tank Number	Tank Integrity	Interim Stabil. Date (1)	Stabil. Method
A-101	SOUND	N/A		C-101	ASMD LKR	11/83	AR	T-108	ASMD LKR	11/78	AR
A-102	SOUND	08/89	SN	C-102	SOUND	09/95	JET	T-109	ASMD LKR	12/84	AR
A-103	ASMD LKR	06/88	AR	C-103	SOUND	N/A		T-110	SOUND	N/A	
A-104	ASMD LKR	09/78	AR	C-104	SOUND	09/89	SN	T-111	ASMD LKR	02/95	JET
A-105	ASMD LKR	07/79	AR	C-105	SOUND	10/95	AR (5)	T-112	SOUND	03/81	AR(2)(3)
A-106	SOUND	08/82	AR	C-106	SOUND	N/A		T-201	SOUND	04/81	AR (3)
AX-101	SOUND	N/A		C-107	SOUND	09/85	JET	T-202	SOUND	08/81	AR
AX-102	ASMD LKR	09/88	SN	C-108	SOUND	03/84	AR	T-203	SOUND	04/81	AR
AX-103	SOUND	08/87	AR	C-109	SOUND	11/83	AR	T-204	SOUND	08/81	AR
AX-104	ASMD LKR	08/81	AR	C-110	ASMD LKR	05/95	JET	TX-101	SOUND	02/84	AR
B-101	ASMD LKR	03/81	SN	C-111	ASMD LKR	03/84	SN	TX-102	SOUND	04/83	JET
B-102	SOUND	08/85	SN	C-112	SOUND	09/90	AR	TX-103	SOUND	08/83	JET
B-103	ASMD LKR	02/85	SN	C-201	ASMD LKR	03/82	AR	TX-104	SOUND	09/79	SN
B-104	SOUND	06/85	SN	C-202	ASMD LKR	08/81	AR	TX-105	ASMD LKR	04/83	JET
B-105	ASMD LKR	12/84	AR	C-203	ASMD LKR	03/82	AR	TX-106	SOUND	06/83	JET
B-106	SOUND	03/85	SN	C-204	ASMD LKR	09/82	AR	TX-107	ASMD LKR	10/79	AR
B-107	ASMD LKR	03/85	SN	S-101	SOUND	N/A		TX-108	SOUND	03/83	JET
B-108	SOUND	05/85	SN	S-102	SOUND	N/A		TX-109	SOUND	04/83	JET
B-109	SOUND	04/85	SN	S-103	SOUND	N/A		TX-110	ASMD LKR	04/83	JET
B-110	ASMD LKR	12/84	AR	S-104	ASMD LKR	12/84	AR	TX-111	SOUND	04/83	JET
B-111	ASMD LKR	06/85	SN	S-105	SOUND	09/88	JET	TX-112	SOUND	04/83	JET
B-112	ASMD LKR	05/85	SN	S-106	SOUND	N/A		TX-113	ASMD LKR	04/83	JET
B-201	ASMD LKR	08/81	AR (3)	S-107	SOUND	N/A		TX-114	ASMD LKR	04/83	JET
B-202	SOUND	05/85	AR	S-108	SOUND	N/A		TX-115	ASMD LKR	09/83	JET
B-203	ASMD LKR	06/84	AR	S-109	SOUND	N/A		TX-116	ASMD LKR	04/83	JET
B-204	ASMD LKR	06/84	AR	S-110	SOUND	N/A		TX-117	ASMD LKR	03/83	JET
BX-101	ASMD LKR	09/78	AR	S-111	SOUND	N/A		TX-118	SOUND	04/83	JET
BX-102	ASMD LKR	11/78	AR	S-112	SOUND	N/A		TY-101	ASMD LKR	04/83	JET
BX-103	SOUND	11/83	AR(2)	SX-101	SOUND	N/A		TY-102	SOUND	09/79	AR
BX-104	SOUND	09/89	SN	SX-102	SOUND	N/A		TY-103	ASMD LKR	02/83	JET
BX-105	SOUND	03/81	SN	SX-103	SOUND	N/A		TY-104	ASMD LKR	11/83	AR
BX-106	SOUND	07/95	SN	SX-104	ASMD LKR	N/A		TY-105	ASMD LKR	02/83	JET
BX-107	SOUND	09/90	JET	SX-105	SOUND	N/A		TY-106	ASMD LKR	11/78	AR
BX-108	ASMD LKR	07/79	SN	SX-106	SOUND	N/A		U-101	ASMD LKR	09/79	AR
BX-109	SOUND	09/90	JET	SX-107	ASMD LKR	10/79	AR	U-102	SOUND	N/A	
BX-110	ASMD LKR	08/85	SN (4)	SX-108	ASMD LKR	08/79	AR	U-103	SOUND	N/A	
BX-111	ASMD LKR	03/95	JET	SX-109	ASMD LKR	05/81	AR	U-104	ASMD LKR	10/78	AR
BX-112	SOUND	09/90	JET	SX-110	ASMD LKR	08/79	AR	U-105	SOUND	N/A	
BY-101	SOUND	05/84	JET	SX-111	ASMD LKR	07/79	SN	U-106	SOUND	N/A	
BY-102	SOUND	04/95	JET	SX-112	ASMD LKR	07/79	AR	U-107	SOUND	N/A	
BY-103	ASMD LKR	N/A		SX-113	ASMD LKR	11/78	AR	U-108	SOUND	N/A	
BY-104	SOUND	01/85	JET	SX-114	ASMD LKR	07/79	AR	U-109	SOUND	N/A	
BY-105	ASMD LKR	N/A		SX-115	ASMD LKR	09/78	AR	U-110	ASMD LKR	12/84	AR
BY-106	ASMD LKR	N/A		T-101	ASMD LKR	04/93	SN	U-111	SOUND	N/A	
BY-107	ASMD LKR	07/79	JET	T-102	SOUND	03/81	AR(2)(3)	U-112	ASMD LKR	09/79	AR
BY-108	ASMD LKR	02/85	JET	T-103	ASMD LKR	11/83	AR	U-201	SOUND	08/79	AR
BY-109	SOUND	N/A		T-104	SOUND	N/A		U-202	SOUND	08/79	SN
BY-110	SOUND	01/85	JET	T-105	SOUND	06/87	AR	U-203	SOUND	08/79	AR
BY-111	SOUND	01/85	JET	T-106	ASMD LKR	08/81	AR	U-204	SOUND	08/79	SN
BY-112	SOUND	06/84	JET	T-107	ASMD LKR	05/96	JET				

LEGEND:

AR = Administratively interim stabilized
 JET = Saltwell jet pumped to remove drainable interstitial liquid
 SN = Supernate pumped (Non-Jet pumped)
 N/A = Not yet interim stabilized
 ASMD LKR = Assumed Leaker

Interim Stabilized Tanks 115
 Not Yet Interim Stabilized 34
 Total Single-Shell Tanks 149

Footnotes: See next page

TABLE I-1. SINGLE-SHELL TANKS INTERIM STABILIZATION STATUS
(sheet 2 of 2)

Footnotes:

- (1) These dates indicate when the tanks were actually interim stabilized. In some cases, the official interim stabilization documents were issued at a later date.
- (2) Originally, seven tanks (B-104, B-110, B-111, BX-103, T-102, and T-112) did not meet current established supernatant and interstitial liquid interim stabilization criteria, but did meet the criteria in existence when they were declared interim stabilized.
- B-110, B-111, U-110 were determined to have met current interim stabilization criteria, per WHC-SD-WM-ER-516-REV0, "Interim Stabilization Status of SSTs B-104, B-110, B-111, T-102, T-112, and U-110," and WHC-SD-WM-ER-518-REV0, "Investigation of Liquid Intrusion in 241-BX-103," both dated October 5, 1995.
- B-104, BX-103, T-102, T-112 have been determined to meet current interim stabilization criteria as of September 30, 1996.
- B-202 was determined to no longer meet the current established criteria for 200-series tanks due to a steady increase in the surface level indicating an ongoing intrusion based on a comparison of in-tank videos and subsequent evaluation in March 1996.
- (3) Original Interim Stabilization data are missing on four tanks.
- B-201, T-102, T-112, and T-201
- (4) BX-110 was interim stabilized by Supernate Pumping in August 1985. Jet pumping began in December 1993 and soon stopped because of equipment failure. Due to low net volume pumped, major equipment failure, and ALARA, it was decided jet pumping would not resume. An in-tank video was taken in October 1994. Re-evaluation after review of the video indicated 1.5 Kgallons of waste was pumped. (Almost 3 Kgallons of water flushes were needed to produce 1.5 Kgallons tank waste.)
- (5) C-105 was interim stabilized administratively on October 30, 1995. No jet pumping occurred in this tank, nor does interstitial liquid level data exist for this tank. There are no diptubes or LOWs installed. Approximately 12 Kgallons of liquid waste was evaporated between May 1993 and October 1995. An in-tank video taken August 30, 1995, revealed a shallow supernatant pool surrounded by a 5-8 foot solids waste shore. The volume of supernate is estimated as 2 Kgallons. The tank currently meets the established criteria for declaring single-shell tanks Interim Stabilized.
- (6) T-107 was interim stabilized by Supernate Pumping in May 1996. Pumping was completed in March, and an in-tank video taken in May showed no supernate visible on the surface. The surface has an irregular contour of mostly sludge, and the elevation differences between high and low points appear to be about four inches.

**TABLE I-2. TRI-PARTY AGREEMENT
SINGLE-SHELL TANK INTERIM STABILIZATION SCHEDULE**

As part of the Controlled, Clean, and Stable mission, the Single-Shell Tank Interim Stabilization Project goal is to mitigate the risk to the environment from a leak release from aging SSTs, by removing as much of the drainable liquid as practical, for safe storage prior to full waste retrieval.

New TPA milestones were negotiated effective October 1, 1996, to allow greater flexibility in the sequencing of tanks, in light of the latest technical information regarding tank waste safety status and watch list concerns.

Milestone	Description	Due Date	Actual Date	Comments
M-41-20	Start Interim Stabilization of 4 Single-Shell Tanks	9/30/96	3/24/96	S-108, S-110, T-104, and T-107 started.
M-41-21	Start Interim Stabilization of 2 Single-Shell Tanks	3/31/97		BY-109 started 9/10/96; Scheduled: A-101
M-41-22	Start Interim Stabilization of 6 Single-Shell Tanks	9/30/97		Scheduled: AX-101, BY-103, BY-105, BY-106, SX-104, T-110
M-41-23	Start Interim Stabilization of 8 Single-Shell Tanks	3/31/98		Tanks to be determined.
M-41-24	Start Interim Stabilization of 9 Single-Shell Tanks	9/30/98		Tanks to be determined.
M-41-25	Start Interim Stabilization of 3 Single-Shell Tanks	3/31/99		Tanks to be determined.
M-41-26	Start Interim Stabilization of 2 Single-Shell Tanks	9/30/99		Tanks to be determined.
M-41-27	Complete Saltwell Pumping of Single-Shell Tanks	9/30/00		

TABLE I-3. SINGLE-SHELL TANKS CONTROLLED, CLEAN, AND STABLE (CCS) STATUS

The Controlled, Clean, and Stable (CCS) Mission Goals are to substantially reduce the operations and maintenance costs for the Single-Shell Tank Farms, to operate within the safety envelope, remove pumpable liquid wastes and contaminated soils/debris, and to achieve compliance with near-term regulatory requirements.

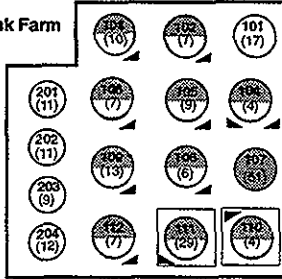
Facility	Completion Due	Completed	Comments
TY-Farm	December 29, 1995	December 29, 1995	Officially designated CCS in March 1996
BX-Farm	September 30, 1996	September 19, 1996	BX-103 has been declared to have met current interim stabilization criteria, and is therefore included in CCS
TX-Farm	September 30, 1996	September 17, 1996	
T-Farm	June 30, 1997		
B-Farm	September 30, 1997		
BY-Farm	September 30, 1997		

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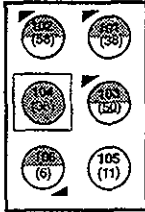
APPENDIX J
CHARACTERIZATION PROGRESS STATUS

200 West

T-Tank Farm



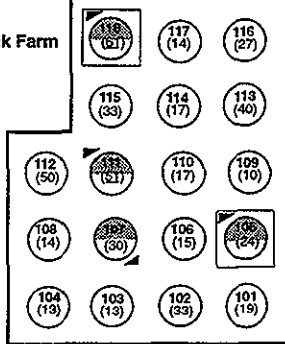
TY-Tank Farm



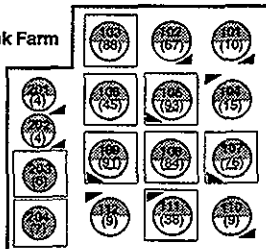
SY-Tank Farm



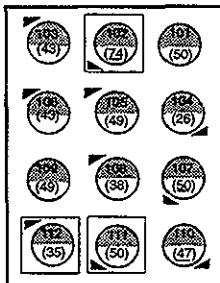
TX-Tank Farm



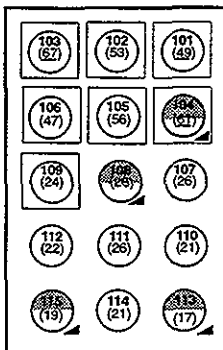
U-Tank Farm



S-Tank Farm

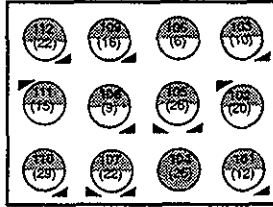


SX-Tank Farm

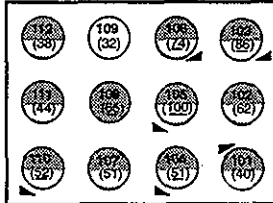


200 East

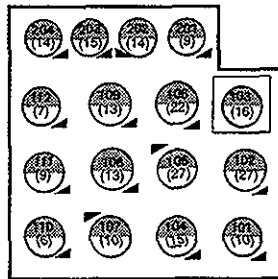
BX-Tank Farm



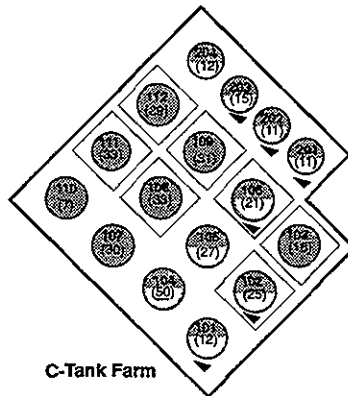
BY-Tank Farm



B-Tank Farm



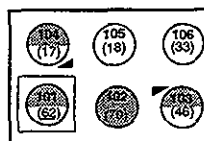
C-Tank Farm



AX-Tank Farm



A-Tank Farm



Hanford Tank Farm Facilities 200 East and West Characterization Progress Status



- No Sample Taken
- Analysis Incomplete
- Sampled, All Analysis Complete

All tanks 75 ft. dia. except 200 series tanks which are 22 ft. dia. @ 55,000 gal

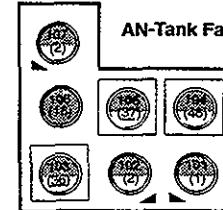
141 Tanks Sampled
344 Samples Taken
18 Tanks - All Analyses Completed

Status as of October 30, 1996

AP-Tank Farm



AN-Tank Farm



AZ-Tank Farm



AY-Tank Farm



AW-Tank Farm

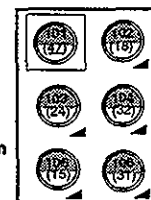


Figure J-1

2G95120163.3

FIGURE J-1: CHARACTERIZATION PROGRESS STATUS CHART LEGEND

200 East/West	The chart divides the two areas.
Tank Farms	Each tank farm is represented by a rough schematic of the tank layout and a heading naming the farm.
Circles	Tanks are depicted by a circle for single-shell tanks and a double circle for double-shell tanks.
Boxes	A thin line box around a tank inside a tank farm denotes "Watch List" status, in concurrence with Table A-1 of this document.
Numbers in Circles	The top number is the tank number. The number in parentheses is a weighted priority number, described in WHC-SD-WM-TA-164, "Tank Waste Characterization Basis." The numbers can be compared to each other to gain appreciation of relative priority: the higher the number, the greater the priority to sample and analyze.
Underlined Numbers	If a number in parenthesis is underlined, it is denoted as a "Characterization Basis Tank," as described in WHC-SD-WM-TA-164, "Tank Waste Characterization Basis." These are key tanks taken from the priority list that are of principal interest to the Characterization Program.
Circle Shading	The shading in the circle indicates the degree to which sampling and analysis are complete per requirements described in applicable Data Quality Objectives (DQOs). If blank, no characterization sampling has taken place. If fully shaded, the sampling and analysis are complete for each DQO applicable to that tank. Tanks in which characterization has begun but is not complete are designated by being half shaded.
Corner Triangles	Small triangles near a tank circle give further information on half-shaded tanks. Upper left corner triangles indicate that vapor samples have been taken from the tank. Lower left-hand corner triangles indicate that the tank has been sampled, analyzed, and a formal report has been written on the condensed phase sampling. Further status of the tank will be determined after review of the report is complete. Lower right-hand corner triangles indicate that some review has been completed and it has been determined that more sampling is needed to resolve the DQO requirements. Absence of triangles from a half shaded tank indicates recent condensed phase sampling.

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